

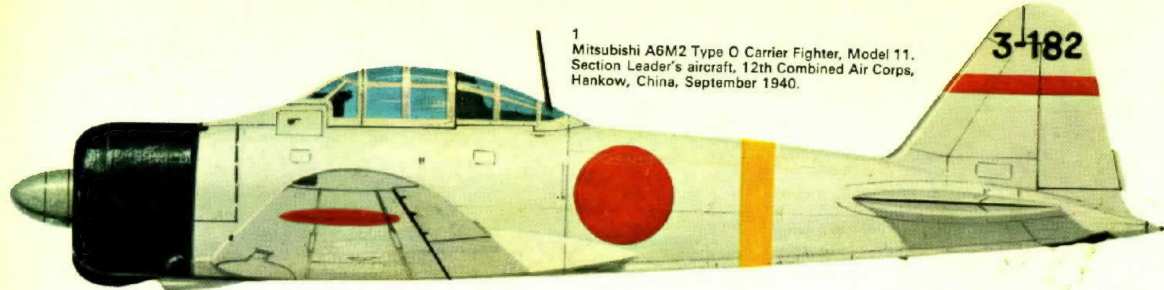
IRCAM AVIATION SERIES

No 1
(VOL. 1)

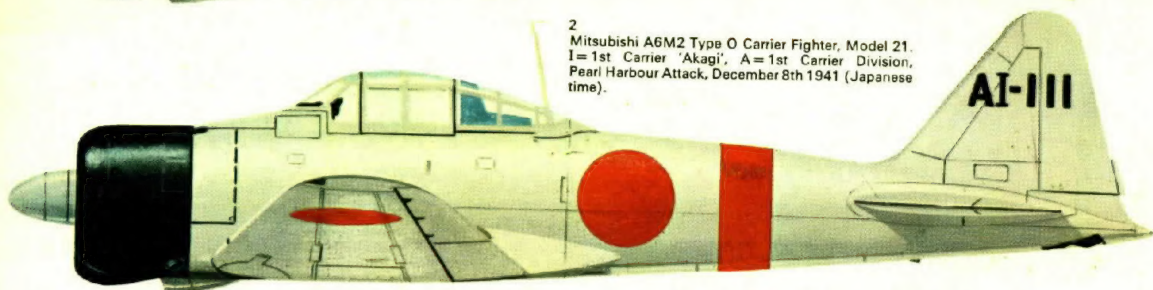
MITSUBISHI A6M1/2-2N ZERO-SEN

IMPERIAL JAPANESE NAVAL AIR SERVICE

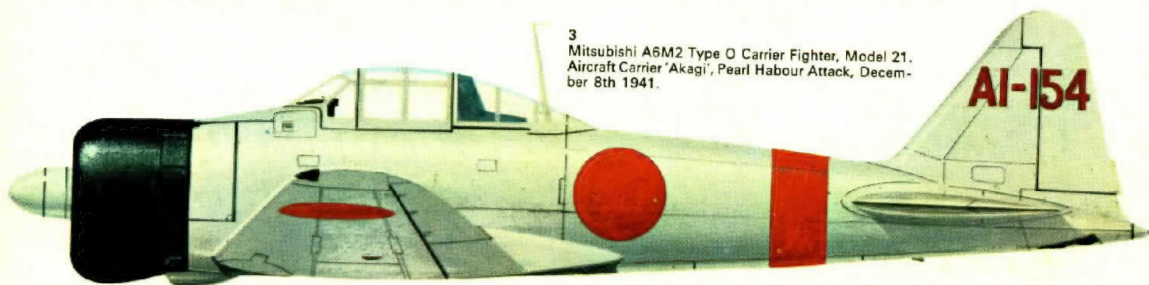




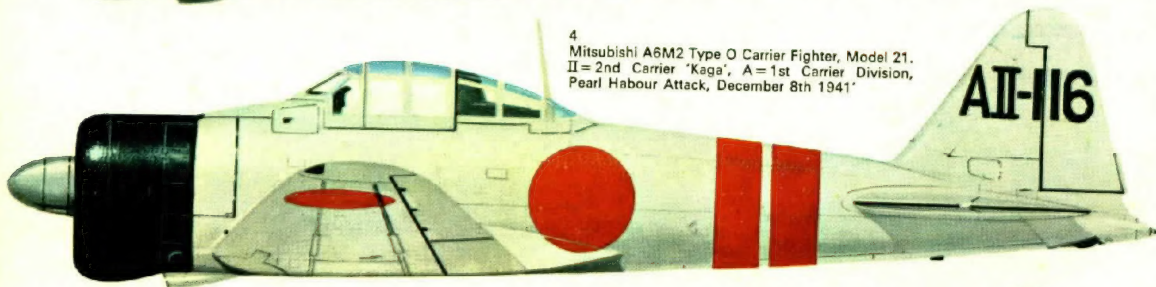
1
Mitsubishi A6M2 Type O Carrier Fighter, Model 11.
Section Leader's aircraft, 12th Combined Air Corps,
Hankow, China, September 1940.



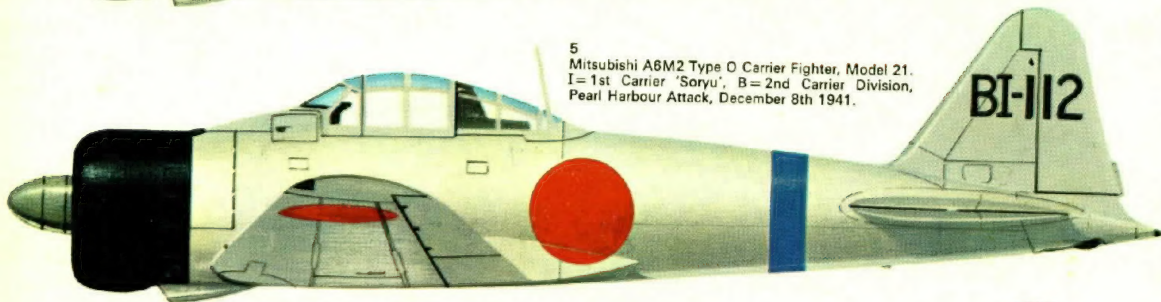
2
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
I=1st Carrier 'Akagi', A=1st Carrier Division,
Pearl Harbour Attack, December 8th 1941 (Japanese
time).



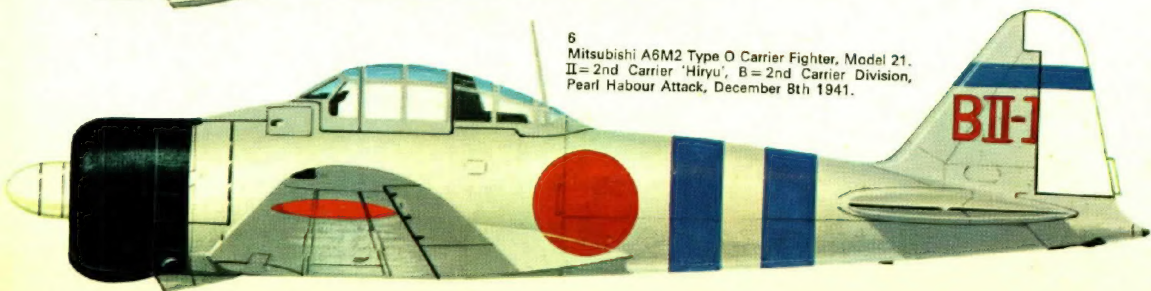
3
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Aircraft Carrier 'Akagi', Pearl Harbour Attack, Decem-
ber 8th 1941.



4
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
II=2nd Carrier 'Kaga', A=1st Carrier Division,
Pearl Harbour Attack, December 8th 1941.

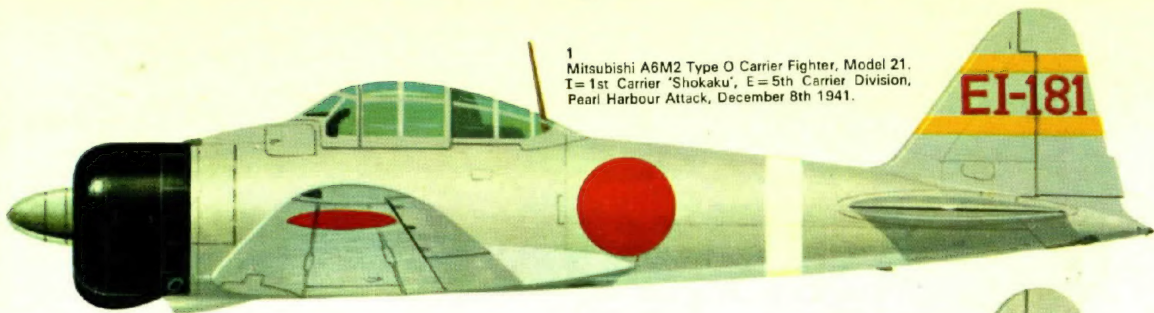


5
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
I=1st Carrier 'Soryu', B=2nd Carrier Division,
Pearl Harbour Attack, December 8th 1941.

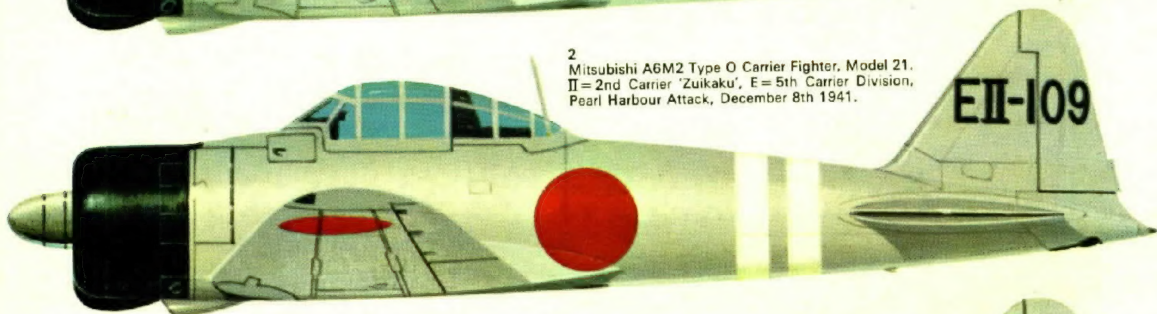


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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
II=2nd Carrier 'Hiryu', B=2nd Carrier Division,
Pearl Harbour Attack, December 8th 1941.

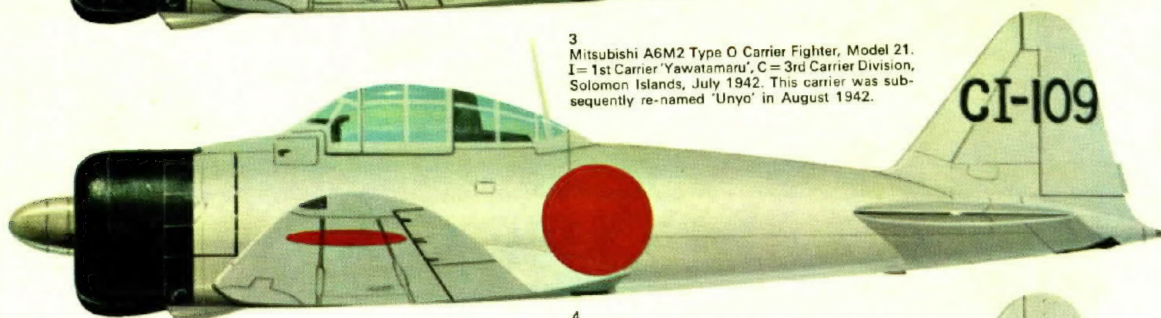
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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
I=1st Carrier 'Shokaku', E=5th Carrier Division,
Pearl Harbour Attack, December 8th 1941.



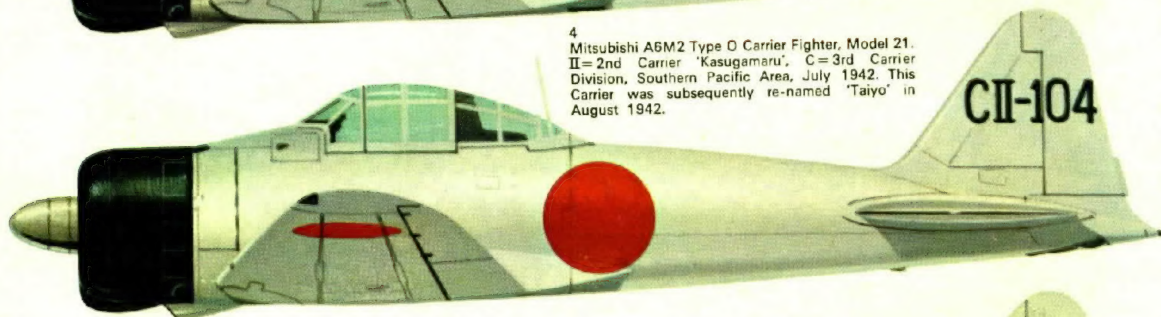
2
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
II=2nd Carrier 'Zuikaku', E=5th Carrier Division,
Pearl Harbour Attack, December 8th 1941.



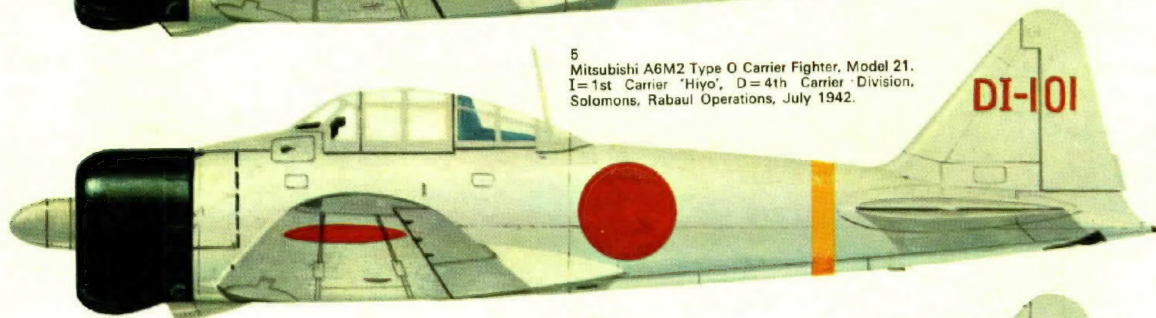
3
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
I=1st Carrier 'Yawatamaru', C=3rd Carrier Division,
Solomon Islands, July 1942. This carrier was sub-
sequently re-named 'Unyo' in August 1942.



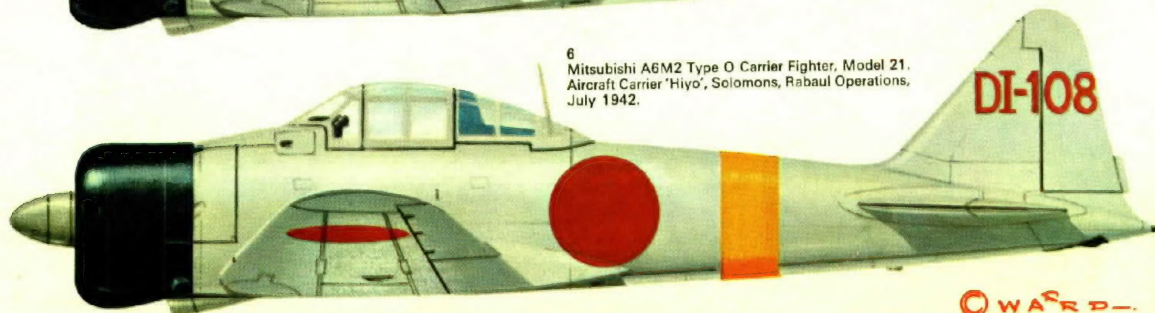
4
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
II=2nd Carrier 'Kasugamaru', C=3rd Carrier
Division, Southern Pacific Area, July 1942. This
Carrier was subsequently re-named 'Taiyo' in
August 1942.

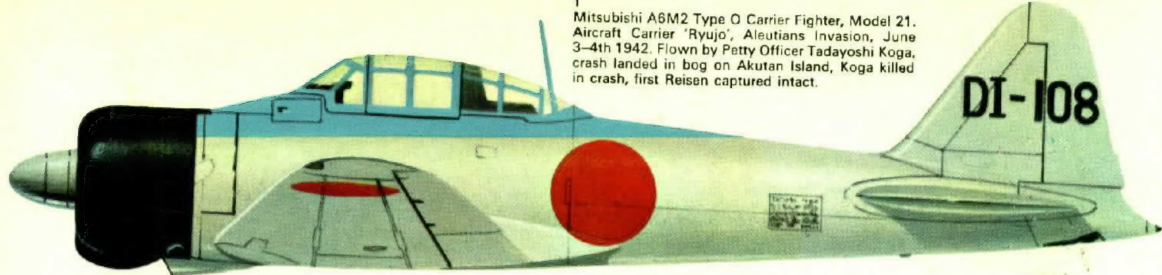


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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
I=1st Carrier 'Hiyo', D=4th Carrier Division,
Solomons, Rabaul Operations, July 1942.



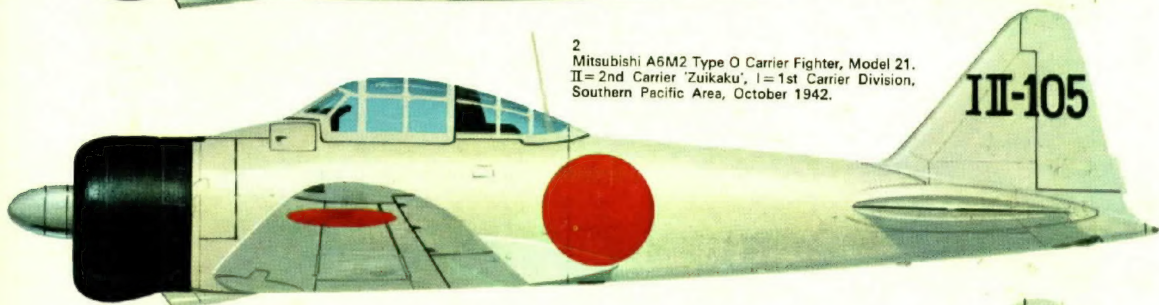
6
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Aircraft Carrier 'Hiyo', Solomons, Rabaul Operations,
July 1942.





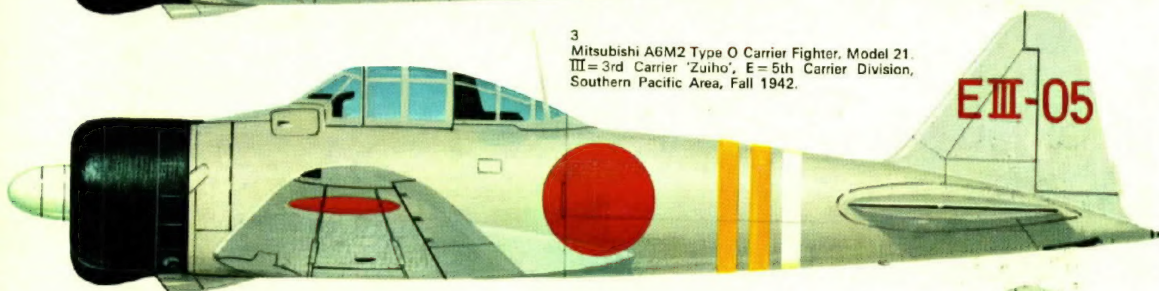
1 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. Aircraft Carrier 'Ryujo', Aleutians Invasion, June 3-4th 1942. Flown by Petty Officer Tadayoshi Koga, crash landed in bog on Akutan Island, Koga killed in crash, first Reisen captured intact.

DI-108



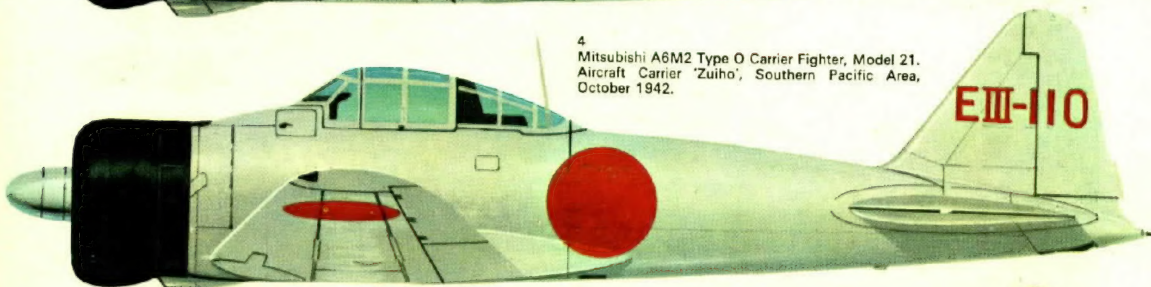
2 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. II = 2nd Carrier 'Zuikaku', I = 1st Carrier Division, Southern Pacific Area, October 1942.

II-105



3 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. III = 3rd Carrier 'Zuiho', E = 5th Carrier Division, Southern Pacific Area, Fall 1942.

EIII-05



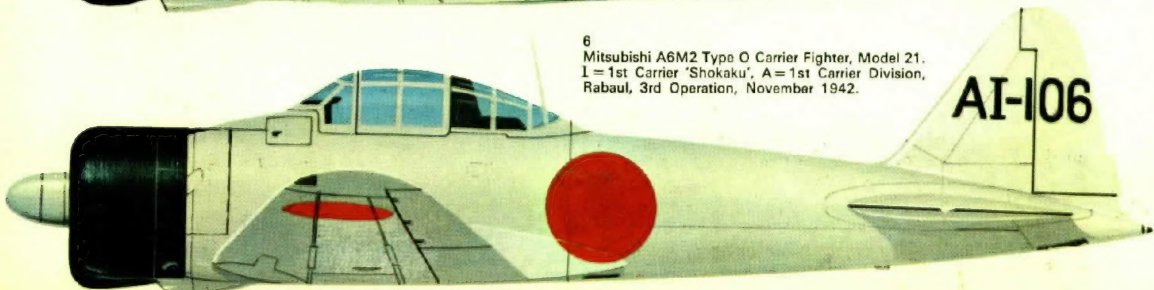
4 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. Aircraft Carrier 'Zuiho', Southern Pacific Area, October 1942.

EIII-110



5 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. I = 1st Carrier 'Shokaku', I = 1st Carrier Division, Southern Pacific Operations, October 1942.

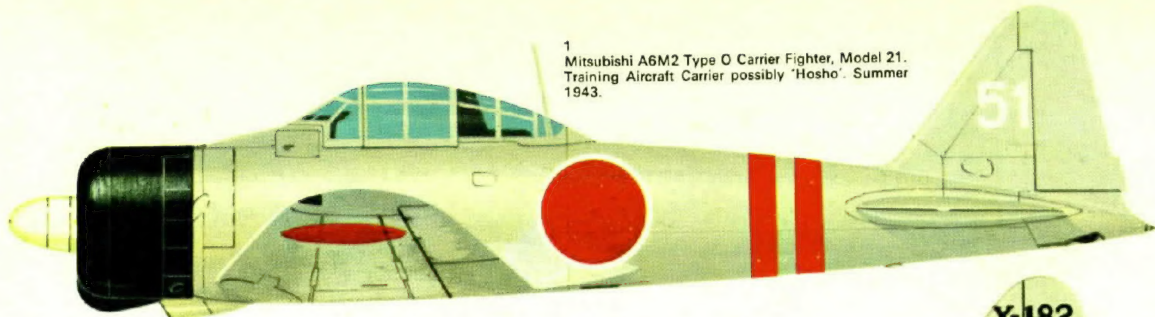
II-106



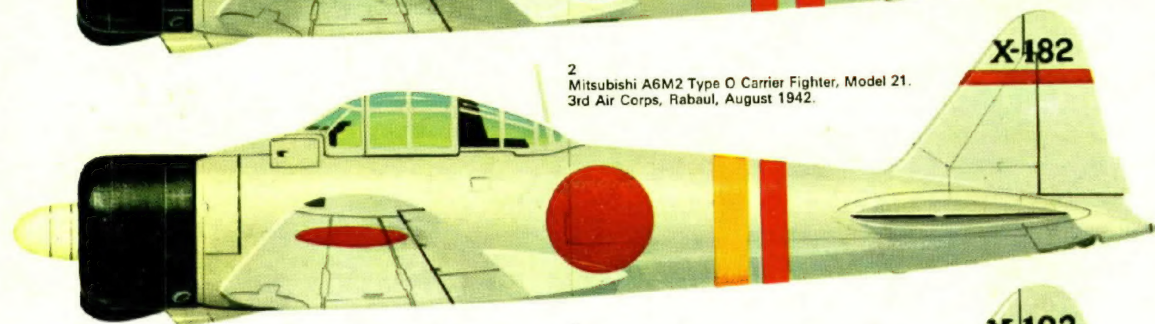
6 Mitsubishi A6M2 Type O Carrier Fighter, Model 21. I = 1st Carrier 'Shokaku', A = 1st Carrier Division, Rabaul, 3rd Operation, November 1942.

AI-106

1
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Training Aircraft Carrier possibly "Hosho". Summer
1943.



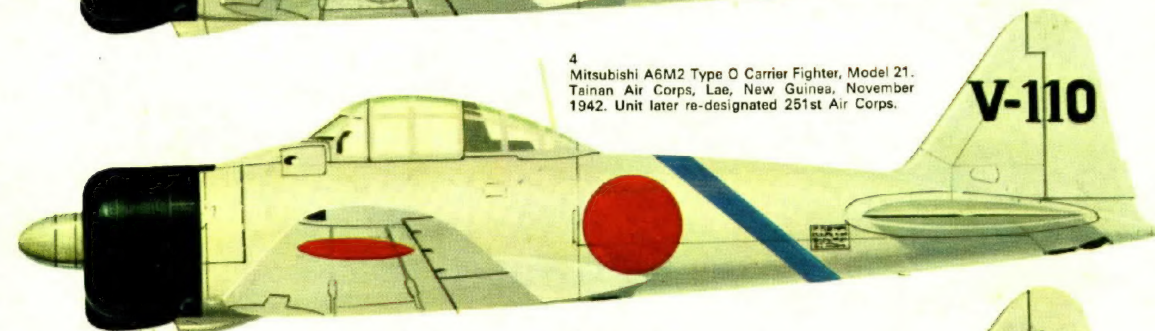
2
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
3rd Air Corps, Rabaul, August 1942.



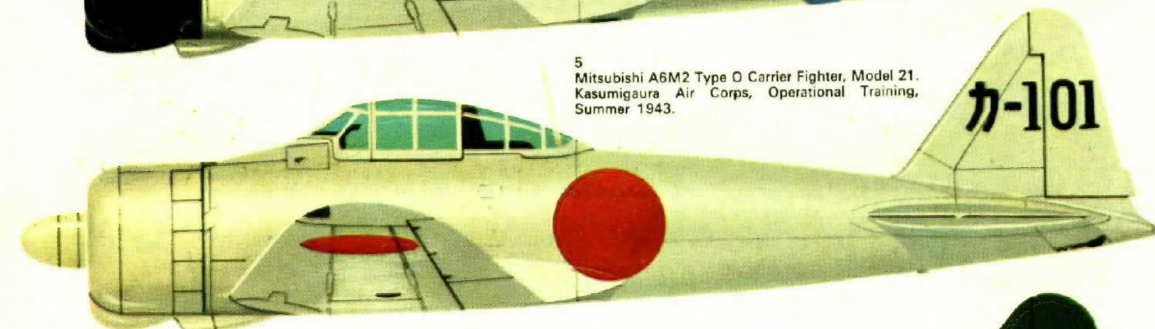
3
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
3rd Air Corps, Kendari, Celebes, March 1942.
Note 11 victory chrysanthemum blossoms on fin.



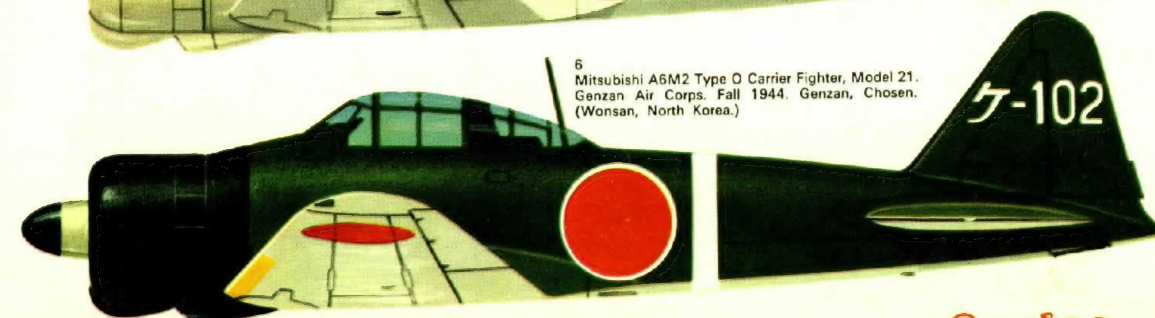
4
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Tainan Air Corps, Lae, New Guinea, November
1942. Unit later re-designated 251st Air Corps.



5
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Kasumigaura Air Corps, Operational Training,
Summer 1943.

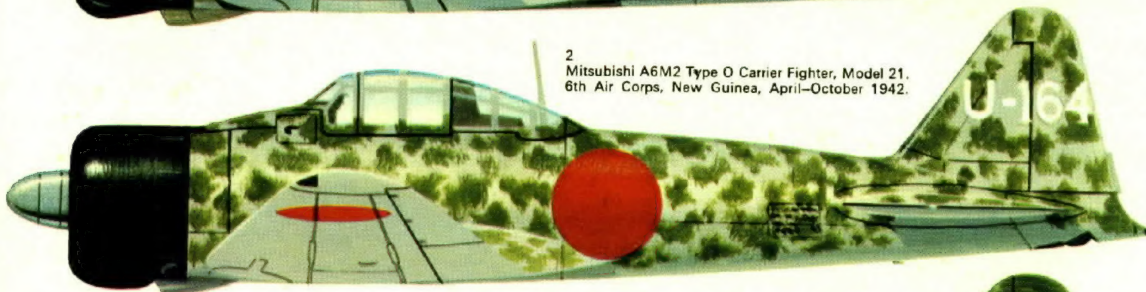


6
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Genzan Air Corps. Fall 1944. Genzan, Chosen.
(Wonsan, North Korea.)



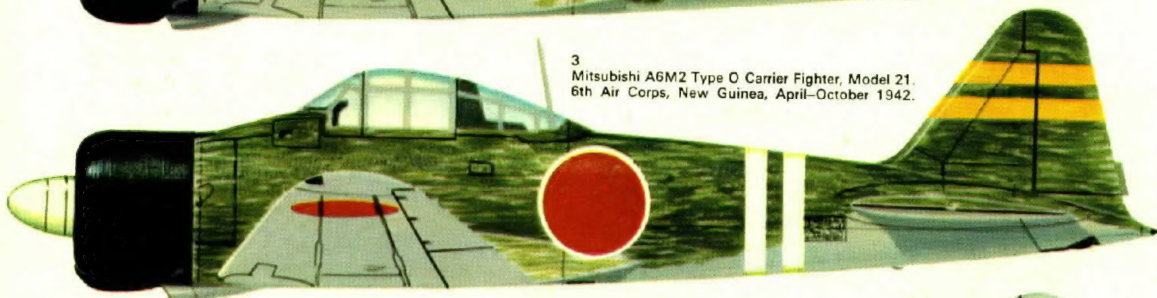


1
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
6th Air Corps, New Guinea, April–October 1942.
Rabaul, New Britain, November 1942. Unit re-
formed in November 1942 as the 204th Air Corps.

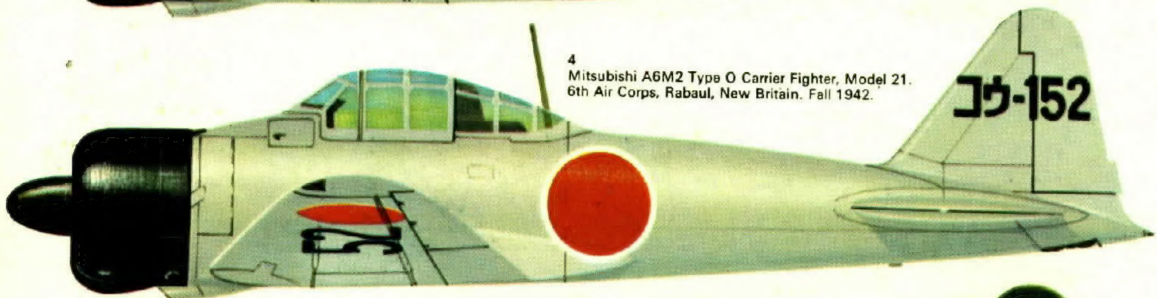


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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
6th Air Corps, New Guinea, April–October 1942.

U-164

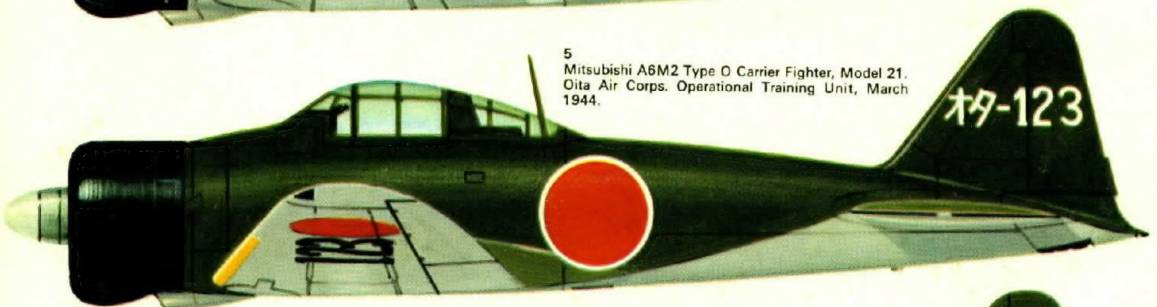


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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
6th Air Corps, New Guinea, April–October 1942.



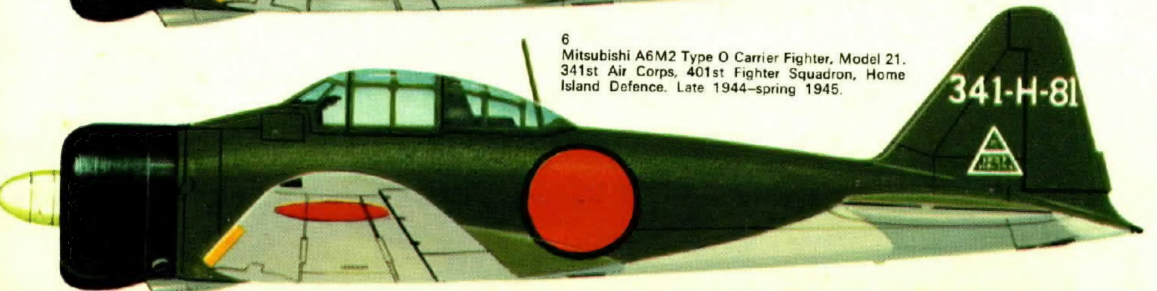
4
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
6th Air Corps, Rabaul, New Britain, Fall 1942.

コウ-152



5
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Oita Air Corps, Operational Training Unit, March
1944.

オタ-123



6
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
341st Air Corps, 401st Fighter Squadron, Home
Island Defence. Late 1944–spring 1945.

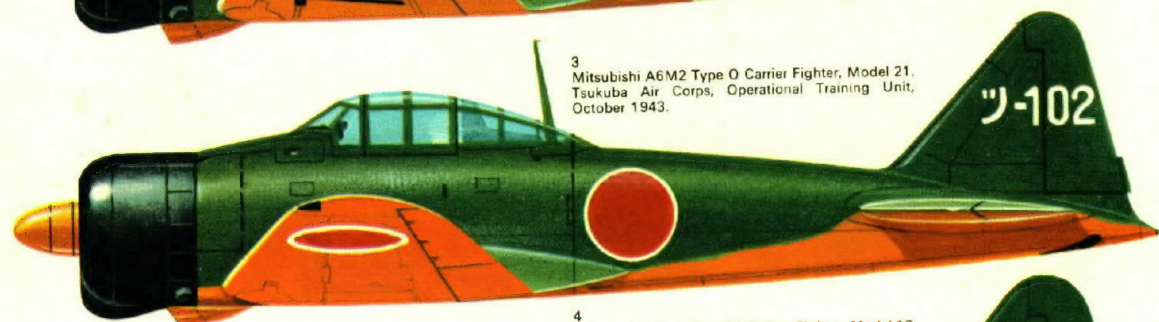
341-H-81



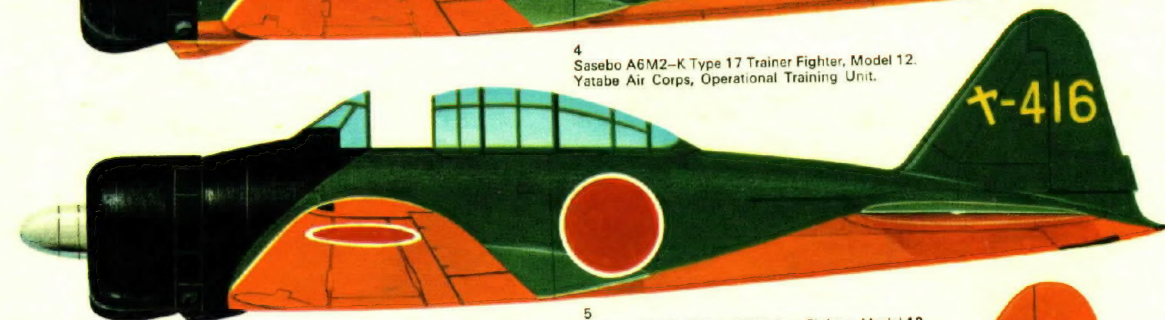
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Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Kasumigaura Air Corps, Primary and Transitional
Training, Operational Training Unit, 1943-44.



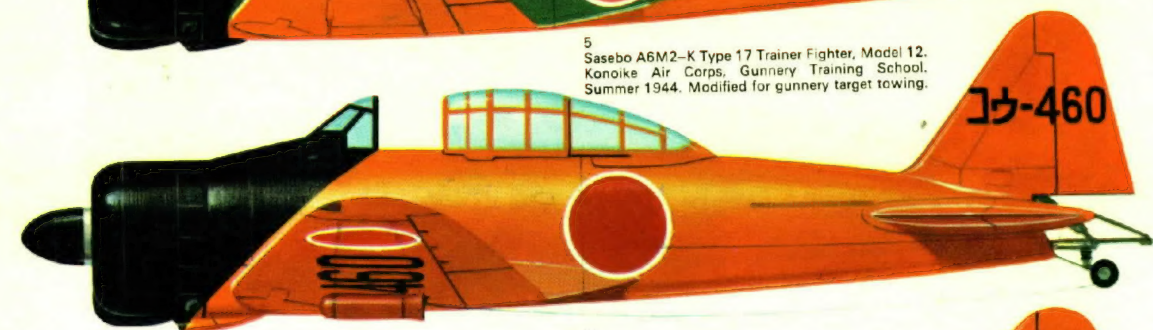
2
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Konoike Air Corps, Gunnery Training School,
February 1944.



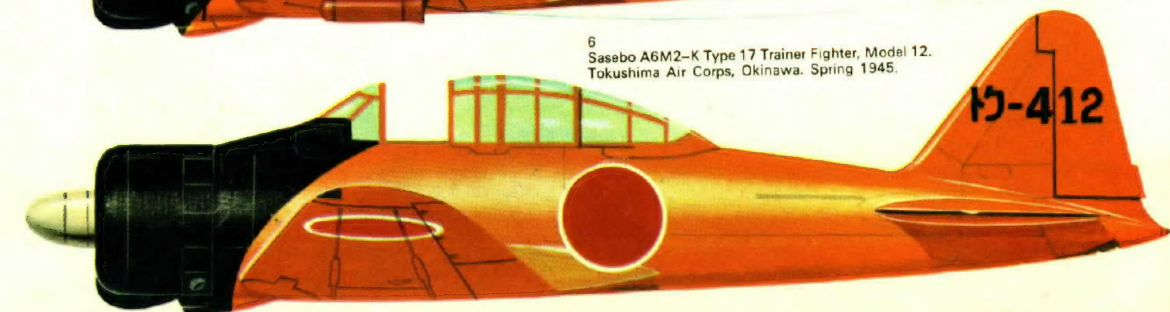
3
Mitsubishi A6M2 Type O Carrier Fighter, Model 21.
Tsukuba Air Corps, Operational Training Unit,
October 1943.



4
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Yatabe Air Corps, Operational Training Unit.

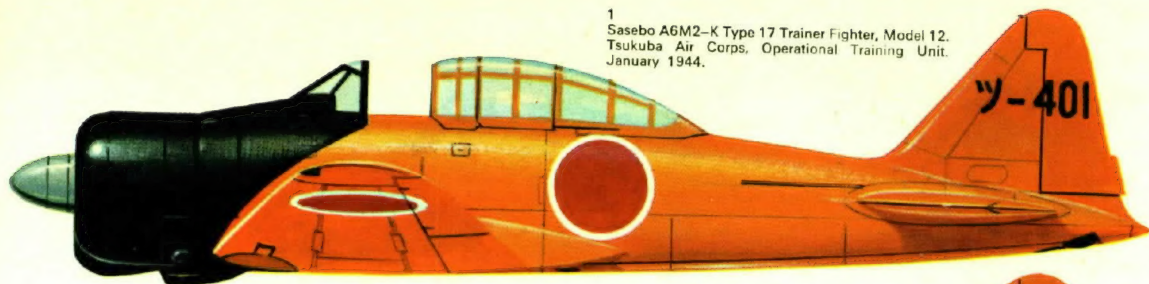


5
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Konoike Air Corps, Gunnery Training School,
Summer 1944. Modified for gunnery target towing.

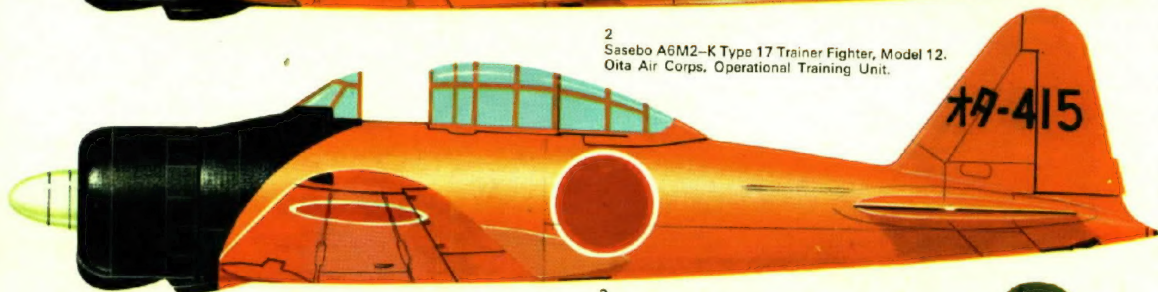


6
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Tokushima Air Corps, Okinawa. Spring 1945.

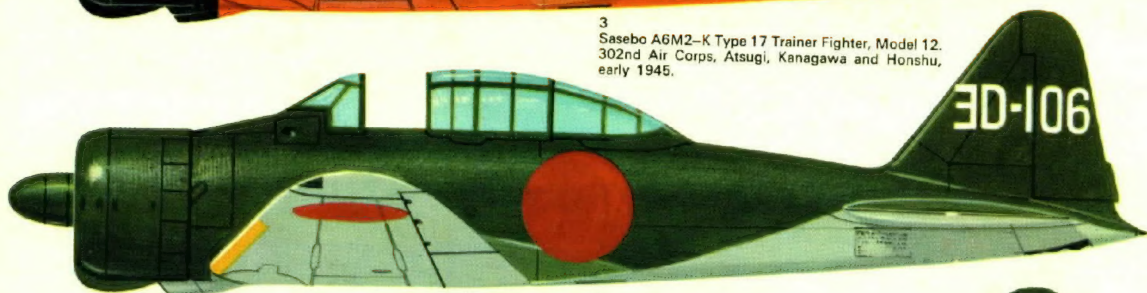
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Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Tsukuba Air Corps, Operational Training Unit.
January 1944.



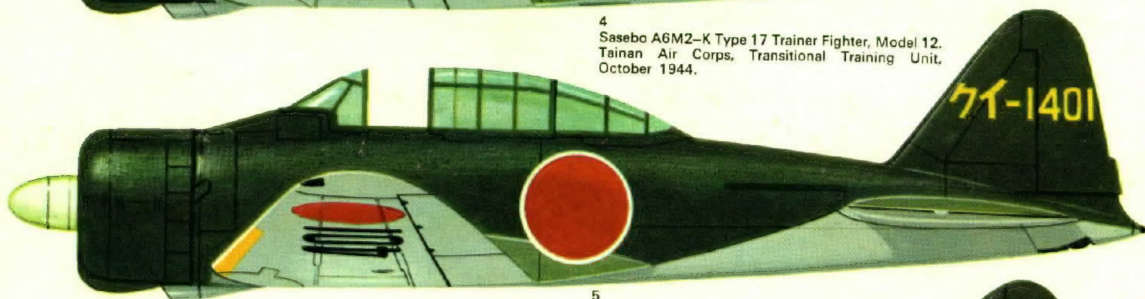
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Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Oita Air Corps, Operational Training Unit.



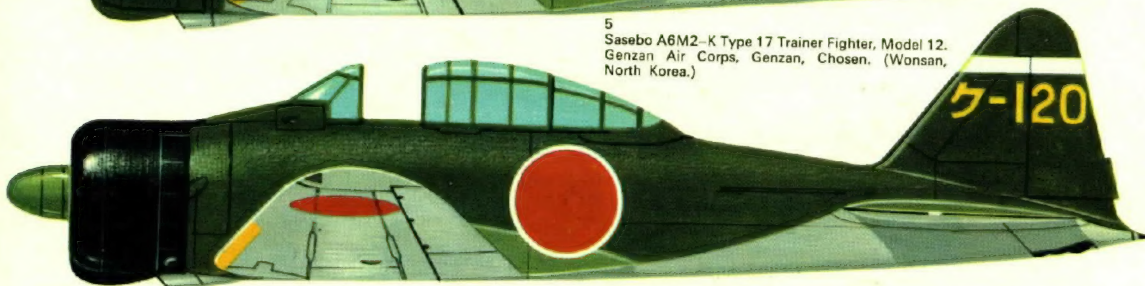
3
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
302nd Air Corps, Atsugi, Kanagawa and Honshu,
early 1945.



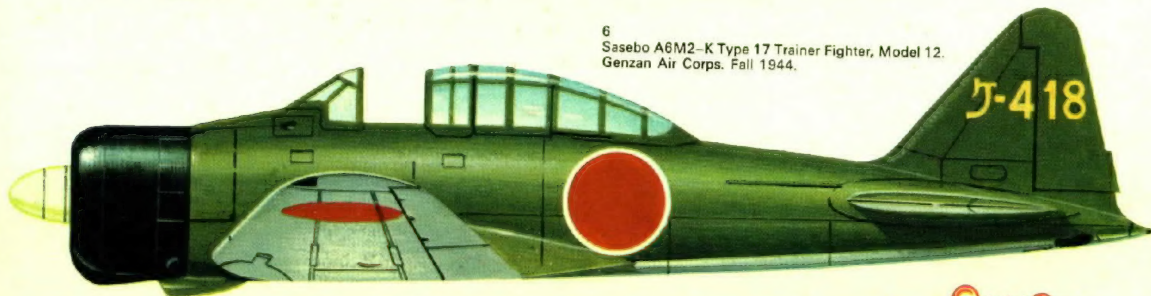
4
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Tainan Air Corps, Transitional Training Unit,
October 1944.

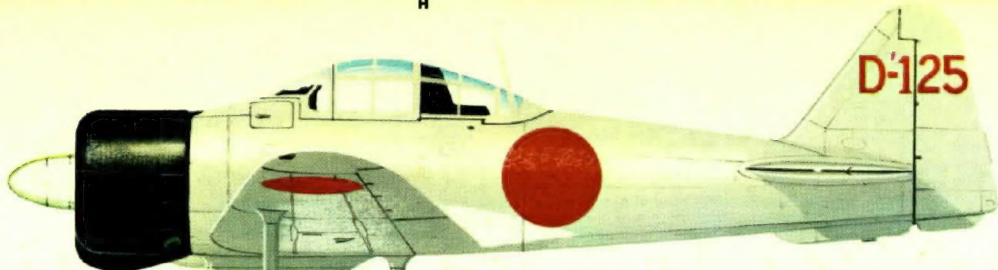


5
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Genzan Air Corps, Genzan, Chosen, (Wonsan,
North Korea.)

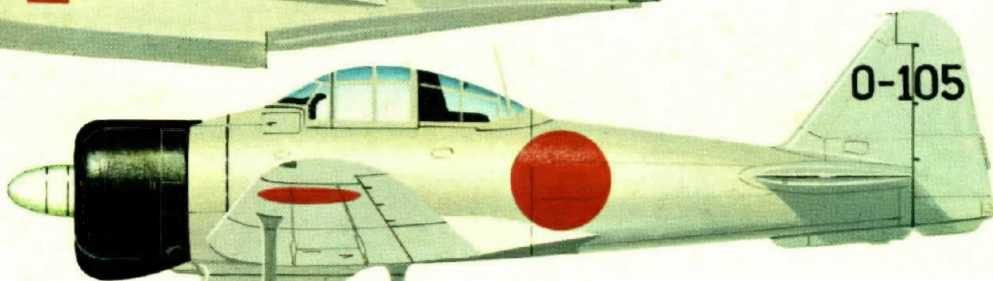


6
Sasebo A6M2-K Type 17 Trainer Fighter, Model 12.
Genzan Air Corps. Fall 1944.

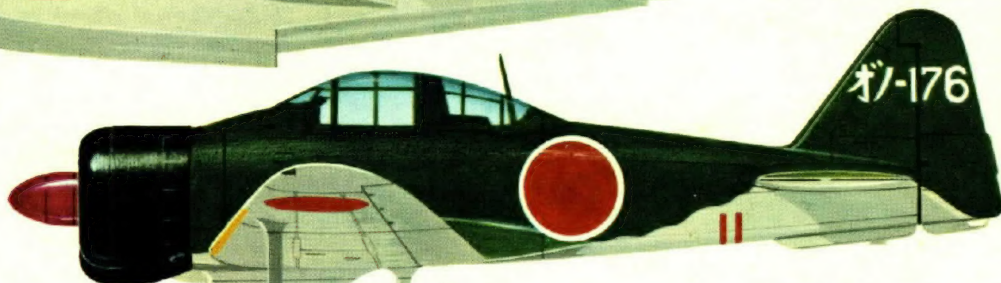




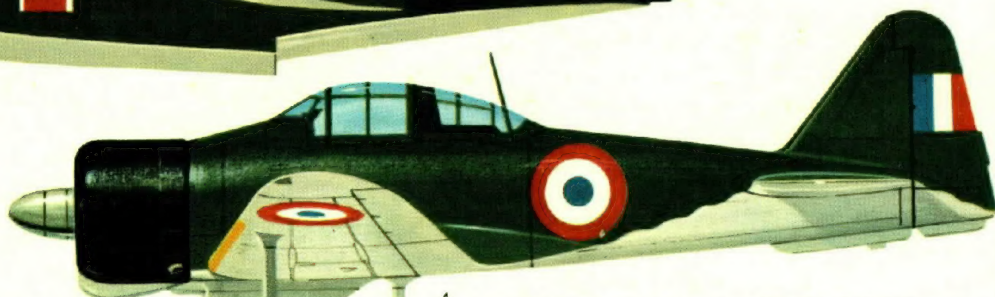
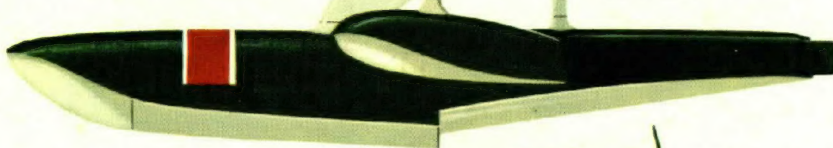
1
Nakajima A6M2-N Type 2 Fighter Seaplane, Model 11. 5th Air Corps, Chosen (Korea), August 1942. In November 1942 this unit became the 452nd Air Corps.



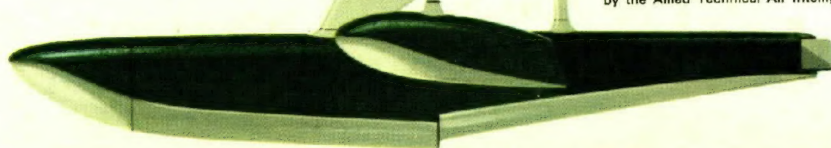
2
Nakajima A6M2-N Type 2 Fighter Seaplane, Model 11. Toko Air Corps, Attu Island, Aleutians. October 1942.

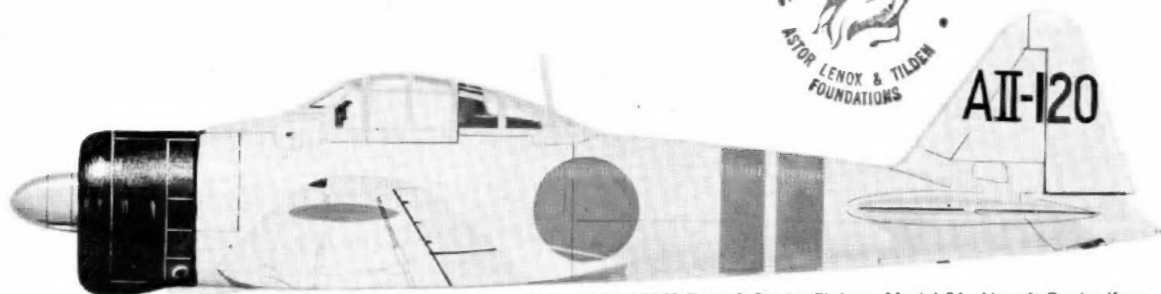


3
Nakajima A6M2-N Type 2 Fighter Seaplane, Model 11. Otsu Air Corps, Home Island Defence. Otsu, Lake Biwa near Kyoto, Defence of Honshu. January 1944.



4
Nakajima A6M2-N Type 2 Fighter Seaplane, Model 11. Flotille II-S, Aeronavale, French Indo-China, 1946. Former aircraft of the 936th Air Corps, Singapore. Handed over to the French Navy after testing by the Allied Technical Air Intelligence Unit.





Mitsubishi A6M2 Type 0 Carrier Fighter, Model 21. Aircraft Carrier Kaga, Pearl Harbour Attack, 8th December 1941. Standard pale grey scheme with red fuselage bands.

MITSUBISHI A6M1/2/-2N ZERO-SEN IN IMPERIAL JAPANESE NAVAL AIR SERVICE

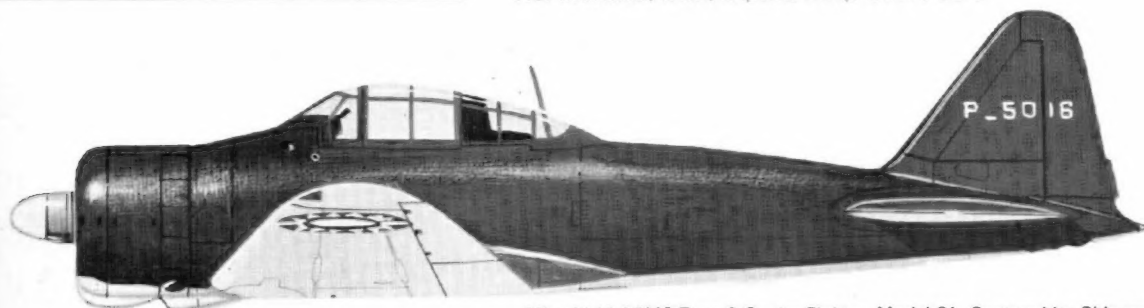
Compiled & written by
Richard M. Bueschel

Illustrated by
Richard Ward

ACKNOWLEDGEMENTS

This book, the first of two volumes covering the most famous fighter type operated by the Japanese Naval Air Service during World War II contains the largest selection of colour side-view illustrations, photographs and data published to date. Volume Two will cover the later Types to the same high standard. Thanks are due to all those who assisted with material and information whose names are listed in alphabetical order below:

Shorzoe Abe, Hideya Ando, Koku Asahi, Asahigraph, Peter M. Bowers, J. D. Canary, J. Earl Capron, Fred C. Dickey Jr., John Ford, Flying Aces, Hiko Nippon, Hiko Shonen, Noboru Jyoko, Koku Fan, Koku Shonen, Kokutishiki, Dr. Hidemusa Kimura, Al Schmidt, Peter Selinger, Sora, Sekai no Kokuki, Shashin Shuho, Seiso Tachibana, M. Toda, Umi to Sorya, Warren E. Woolman, Australian War Memorial, IWM, Imperial Navy, USAF, USN.



Mitsubishi A6M2 Type 0 Carrier Fighter, Model 21. Captured by Chinese Nationalist Air Force. Test flown by AVG pilots. Olive drab uppersurfaces, pale grey undersurfaces, CNAF roundel on wings only, these were later replaced with USAF insignia in standard two position style.

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Crewmen ready to release the chocks prior to launching the 1st Attack Wave of fighters under command of Lieut Commander Itaya of the Akagi. Pearl Harbor attack, December 8th, 1941 (Shorizoe Abe).

MITSUBISHI A6M1/2/-2N ZERO-SEN

It was late in the afternoon on June 4, 1942 when Lieutenant Colonel Sweeney of the United States Army Air Corps decided to throw his four remaining B-17E Flying Fortress bombers into the battle for Midway. An hour later two more patched up Fortresses took off from the Midway island airfield. There wasn't much else left after the earlier Japanese carrier plane attacks. The American advantage in the battle, a code-breaking intelligence coup that revealed the Japanese plans, was of little consequence when it came to the sheer weight of equipment that the Japanese were able to place on the scene. The Americans were out-gunned, outnumbered and out-manned. Reports came through that four large Japanese Fleet carriers had been hit during the day, and were presumed lost. But nobody was sure. Sweeney's Fortresses went looking for the Imperial Fleet, found some surface elements and then fought for their lives as they were jumped by a flock of the deadly "Zero Fighters." The battle was obviously far from over. The Japanese appeared to have victory within their grasp, for it was apparent that the loss of the carriers *Soryu*, *Kaga*, *Akagi* and *Hiryu* hadn't stopped the intrusive assault on Midway for control of the Central Pacific. The "Zeros" in the air proved that. There was apparently one, or perhaps even more, Fleet carriers in the vicinity. As the night of June 4 moved into the dawn of June 5, the small garrison at Midway braced for the inevitable invasion.

It never came. As Sweeney's B-17's left the waters temporarily under enemy control, the Japanese Mitsubishi-designed and often Nakajima-built A6M2 Type 0 Ship-Based Fighters sputtered out their last drops of usable fuel, and pancaked into the sea. They were from the carrier *Hiryu*, the last Japanese carrier to be hit by the American SBD Dauntless dive bombers that fateful afternoon, and had no place to land. An alarming inventory of the finest carrier combat planes ever to put to sea in their time bubbled to the bottom of the Pacific, taking the Japanese plans for territorial expansion by force of arms with them. No Japanese fighter plane ever flew this close to the American heartland again. The greatest naval battle since Trafalgar ended with an American victory of magnificent proportions, but the United States didn't realize it for a full day. In just less than six

months since the Pearl Harbour attack of December 7, 1941 (American time), the Japanese thrust, spearheaded across its broad fronts by the *Zero-Sen* (in translation called the same thing by the Pacific Allies—"Zero-Fighter"), had been blunted. It would take another three years of bloody fighting before it would all be over, but after Midway the issue was never in doubt. Japan, and the *Zero-Sen*, had a brief moment of great glory, followed by a long, grinding path of retribution. This is the story of that journey, and of what is regarded as the best-known single aircraft of the Pacific War.

Creation of a myth

By the middle 1930's American-trained Mitsubishi engineer Jiro Horikoshi had created the uniquely Japanese 9-*Shi* fighter, which ultimately reached production as the A5M1 Type 96 Ship-Based Fighter, entering unit service in numbers in models up to the A5M4 in the late 1930's. Not one to let a technological advantage lapse, the Japanese Naval Air Force (JNAF) called for a replacement in May 1937, and Jiro Horikoshi's staff undertook the design of the 12-*Shi* fighter. By October the original JNAF specifications were tightened up, based on combat experience in China. Originally in competition with Nakajima for the production order, Horikoshi's experience and Nakajima's reluctance to lose money on the changing project left Mitsubishi alone in the field by the end of January 1938. By April the basic design was approved by the Naval Aeronautical Establishment at Yokosuka, and by the summer of 1938 Mitsubishi was cutting metal to build the prototype. Under Horikoshi's guidance, structure engineers Yoshitoshi Sone and Yoshio Yoshikawa made liberal use of the newly created ESD Extra Super-Duralumin to lighten the airframe. Other technical tricks were applied to keep the aircraft light and enhance its fighting manoeuvrability. Interconnecting structures, with the wing spar an integral part of both wing and fuselage, reduced individual assemblies while cradling the two wing cannon. This alone saved over a hundred pounds weight of fasteners and connectors. The heavy safety devices gaining growing acceptance in Europe and America,

such as pilot armour and self-sealing fuel tanks, were ignored in the weight-saving engineering. Lightweight plywood auxiliary fuel tanks were even added as a lash-on to increase the range greatly without adding the weight of additional airframe tankage. The resulting completely original fighter design weighed less than any comparable fighter in the world while carrying the heavy specified armament of two 20mm cannons and two 7.7mm machine guns, and quickly found acceptance in the JNAF in a form that would have been thoroughly unacceptable in the other major aircraft carrying nations such as Britain, France or the United States.

This stress on manoeuvrability at the expense of strength and safety did not cause problems for years to come, for in the hands of good pilots the Allied enemy never really had a chance to get a shot at the high-performing *Zero-Sen*. But ultimately the cost was high, both in production and in combat. The basic structure was a complicated single-unit assembly and took a long time to produce per piece. It was impossible to build major *Zero-Sen* components in a variety of plants for assembly at a collecting point. With more A6M fighters produced between 1940 and August 1945 than any other Japanese aircraft type—the excessive production time added up to a loss of productive capability. In combat, once the Allied pilots caught on to the weaknesses of the *Zero-Sen* and learned that it would virtually crumble or blow up under heavy machine gun or cannon fire, the losses of the *Zero-Sen* rapidly climbed past the point of acceptability, until even its own pilots would rather avoid a fight than chance their destruction. But all of that was well in the future, and only a pundit could have guessed that the engineering marvel presented to the JNAF as the completed 12-*Shi* Ship-Based Fighter could provide the Imperial Navy with anything but power and fame.

The first prototype, receiving the designation A6M1, was completed in February 1939 at Mitsubishi's experimental shops at Nagoya. On March 19 it was wheeled under wraps by ox cart to the Japanese Army Air Force (JAAF) field at nearby Kagamigahara where it flew on the afternoon of April 1 piloted by civilian Katsuzo Shima, a Mitsubishi test pilot. On April 25 Shima got the aircraft barely over 300 m.p.h. and fell just short of the original JNAF specs for a speed of 312 m.p.h. Naval pilots began to fly the A6M1 in July. No major design faults showed up, and a vibration harmonic was eliminated by using a constant speed 3-bladed airscrew in place of the original variable pitch 2-blader. The only real problem seemed to be speed and the inability of the 780 h.p. Mitsubishi *Zuisei* 13 engine to put it over the top. While a second A6M1 prototype was being completed the JNAF gave the go-ahead to a more powerful model as the A6M2 powered by the 940 h.p. Nakajima *Sakae* 12 of 940 h.p. It became the classic "Zero-Fighter" production model and, with little

basic change from its prototype, flew in this form until the end of the Pacific War.

With naval acceptance of the A6M1 on September 14, 1939 after 162 hours of flying time, secret carrier trials began. The A6M1 didn't pass, and for a while it looked as if the whole 12-*Shi* programme was stalled. Then, when the second A6M1 prototype, flown for the first time in October, blew up in mid-air on March 11, 1940 killing its naval pilot, an engineering examination was demanded. A redesign of the wing, and strengthened spars, further improved the budding A6M2. With the first A6M2 12-*Shi* completed in December 1939, followed by an additional A6M2 in early 1940, the design was finalizing.

The new prototype took to the air on January 18, 1940. While trials with this, and the second prototype, were underway the Imperial Navy decided to jump the developmental and combat evaluation time and ordered an additional 15 prototypes for operational testing in China. Work was rushed, briefly held up after the March 11 explosion, and pushed again. Originally scheduled to be sent to China in May, in spite of delays the aircraft were ready at the end of June. By the first week in July a cadre of select A5M4 *96 Kansen* pilots were being converted to the experimental A6M2, flying in two new JNAF squadrons of the 12th Combined Naval Air Corps in China, created for the purpose. Carrier trials also took place at sea on the *Kaga* in June, and this time the faster, more powerful A6M2 was obviously passing with glory. The Japanese Navy had a remarkable new contemporary fighter ready for production less than a year after World War II began in Europe. The seeds for surprise were sown.

Introduction to combat

No fighter aircraft type ever entered combat receiving more care and attention than the first group of Mitsubishi 12-*Shi* A6M2 pre-production prototypes. Hand made, radically new and each one literally a research project, the dozen or so aircraft left for Hankow, China, overseas home of the 12th Combined Naval Air Corps, on July 21, 1940, under the care of Lieutenant Tamotsu Yokoyama and Lieutenant Saburo Shindo, their two youthful squadron commanders. Just as they were setting up in China the final reports of the preliminary testing on the *Kaga* as well as the *Yokosuka* Naval Air Test Centre were completed, and Mitsubishi's new fighter was accepted for JNAF production on July 31, 1940 as the A6M2 Type 0 Ship-Based (Carrier) Fighter, Model 11. It immediately became the *Reisen*, or "Zero-Fighter", although the Japanese themselves preferred the Anglicized version and more often called it the *Zero-Sen*.

Production plans moved quickly, with production-model A6M2's being built at Mitsubishi's No. 3 Airframe Works at Nagoya the first week in August, with finished aircraft rushed to China to join the hand-crafted 12-*Shi* combat prototypes. By the end of November almost fifty had been built with modifications incorporated during production based on the hundreds of flying hours stacking up in the evaluation flights in China. The main spar was strengthened after September, and by late November the airframe was modified to manually fold the wingtips to enable the *Reisen* to fit standard Fleet Carrier elevators. With this change the A6M2 became the Model 21, remaining in production in this form for over two years. Vibration problems, and the death of a *Yokosuka* test pilot on April 17, 1941, led to the addition of aileron trim tabs beginning with production aircraft No. 127.

With all of these changes accomplished the design was frozen and arrangements were made to have the A6M2 Model 21 produced by Nakajima also, with the first production model coming off the lines at *Koizumi* late in November 1941. Experience in China, and on the carriers, improved the breed so completely that the ultimate production model was virtually de-bugged in less than a year after the first pre-production prototypes took to the air in combat over Hankow, China in August 1940, a remarkable rate of value-analysis at a time when such sophisticated engineering was in its infancy.

The experience in China with the experimental A6M2 models, soon joined by production A6M2 Model 11's, was

Over a year before the pearl Harbor attack the Type 0 Carrier Fighter was flying combat missions over China. These are 12-*Shi* prototypes, later designated A6M2 Model 11, during evaluation trials prior to assignment in China (Sekai no Kokuki).





The A6M2 Model 11 Reisen entered combat evaluation in August 1940 in China. This is aircraft No. 177 of the 12th Combined Air Corps stationed at Hankow, China, September 1940. Fuselage band denotes Section Leader (Seiso Tachibana).

successful beyond the wildest dreams of the JNAF planners. By the summer of 1940 the war had moved so far inland that the Imperial Navy's heaviest G3M2 bombers had to attack a well-defended Chungking without fighter escort due to the long ranges. Arrival of the *Reisens* changed the picture completely. Flying missions of over 1,000 miles round-trip, Lieutenant Yokoyama led his squadron of 12-*Shi* fighters over Chungking on an escort mission on August 19, 1940 with Lieutenant Shindo following with his squadron the next day. The defending Chinese fighters oddly remained out of sight and the disappointed Japanese pilots returned to their base without the taste of battle. The earlier Chinese tactics had consisted of diving passes at sitting-duck bombers. With the arrival of the new Japanese fighters, the Chinese held back and avoided combat.

It wasn't until almost a month later, on September 13, that the *Zero-Sen* drew first blood. Pretending to leave the target area with the bombers, the Japanese fighters under command of Lieutenant Saburo Shindo and Sub-Lieutenant Ayao Shirane suddenly turned around and came back over Chungking about thirty minutes later. Diving out of the sun into a sky crowded with Chinese fighters, the Japanese shot down 27 Polikarpov I-15bis and I-16 and Curtiss Hawk III fighters in half-an-hour. The first *Zero-Sen* "ace" came out of this single battle, when Petty Officer Koshiro Yamashita shot down five of the Russian-built Chinese fighters. Yamashita later went on to become one of the ranking JNAF aces of the Pacific War with a confirmed score of nine kills and an unofficial rating of over ten. The 12th Combined Air Corps fighters had gained a major victory without loss to themselves.

Then combat got sparse again, and Chinese aircraft stayed out of their way. Ranging deep into China, the Japanese fighters gained proficiency and searched vainly for targets. Psychologically the Japanese felt invincible, and their frustration at being unable to engage in aerial combat made itself shown in various ways. In a raid against Chengtu on October 4, four of the Japanese *Zero-Sens* in a flight led by Superior Petty Officer Ichiro Higashiyama actually landed on the Chinese airfield and the pilots attempted to blow up the aircraft while their A6M2's sat at the edge of the field

with their engines ticking over. The fantastic audacity of the Japanese carried them through, and in spite of a withering ground fire they damaged some aircraft and got away while their comrades in the air pinned the defenders down with a constant series of strafing runs. In the heat of action the stupidity of the move was ignored. Had only one of the pilots received a minor wound, or been killed, the Chinese at Chengtu would have been left with a newly-produced *Zero-Sen* prototype. Conveniently, Chengtu was also the main experimental and aircraft evaluation base of the Chinese Air Force.

Perhaps the most disappointed man of all was Claire Lee Chennault, an American adviser to Chinese leader Chiang Kai-Shek, and commander of the Chinese Air Force. Chennault had been collecting data on the *Zero-Sen* since its first appearance over Chungking late in August, and was vainly trying to learn its secret to develop counter-tactics. With the Chengtu opportunity missed, all he could do was watch helplessly as the months rolled by and his demoralized Chinese pilots fell one by one before the guns and cannon of the A6M2. The commando-like raid on Chengtu also had a profound effect on the Chinese, generating a defeatist attitude that further cut the efficiency of the Chinese Air Force. When *Zero-Sens* and A5M4 96 *Kansen* fighters of a detached unit of the 12th Combined Air Corps began to raid the Chinese training base at Kunming from the new Japanese airfields in occupied French Indo-China in October, the spirit of the Chinese Air Force was broken, and the Japanese gained full command of the air over central and southern China. By the end of 1940 the JNAF had used somewhat over a hundred 12-*Shi*, Model 11 and Model 21 *Zero-Sens* over China and reportedly shot down 59 Chinese aircraft while destroying 101 others. Throughout the fighting not a single *Zero-Sen* fighter was lost.

As the fighting tapered down in China, the *Zero-Sen* still held its record of superiority over its foe. Virtually alone in Chinese skies throughout 1941 while the JNAF reorganized its forces to be prepared in the event of a Pacific War, the *Zero-Sens* reportedly shot down an additional 45 Chinese planes while destroying or damaging 62 others on the ground

Model 11 Reisen No. 163 of the 12th Combined Air Corps over Hankow, China, late 1940 (Sekai no Kokuki)





Kept secret for well over a year of combat service, this first "public" photograph of the A6M2 was released to the Japanese press immediately after the Pearl Harbor Attack (Koku Asahi).

by the end of September 1941. In one raid on Chengtu on March 14, they shot down 24 Chinese aircraft plus three probables. A raid on Chengtu by JNAF heavy bombers on May 20 was escorted by thirty A6M2's. It was during this raid that the first *Zero-Sen* was lost in combat, with Superior Petty Officer Kimura's A6M2 crashing as a result of ground fire. By September, only one other A6M2 had been lost, also to ground fire. Thousands of miles away from their home, the Japanese owned the skies over China.

It seemed that only a miracle could ever shoot a Japanese aircraft down in China again—but even that was created by the *Zero-Sens*. To combat the malaise that had taken hold in the Chinese Air Force after the attack on Chengtu in October 1940, Generalissimo Chiang Kai-Shek called in Chennault and proposed the idea of a mercenary force of American pilots flying modern American planes in the defense of China. The idea took hold, aircraft were made available, and the American Volunteer Group (A.V.G.) was formed. In a little over a year the A.V.G. was demonstrating the combat deficiencies of the *Reisen* in Chinese skies.

In Fleet Service

As the *Zero-Sen* made its backwards introduction into service as a land fighter, the weapons system that would conquer more global mass in six months than any army in history was being developed: the A6M2 Model 21 and the Fleet Carrier. At the time the A6M2 was accepted for production as a carrier fighter in the summer of 1940, following successful trials on the *Kaga*, the Imperial Navy had only four large Fleet Carriers, with numerous other light and training carriers. By April 1941 *Zero-Sen* contingents had been formed on the carriers *Kaga*, *Akagi*, *Hiryu* and *Soryu*. By the summer of 1942 two additional large carriers had joined the fleet, with the folding wingtips of the Model 21 permitting use of the aircraft on every fighting carrier in the Imperial Navy.

Sheltered from combat, but given almost a year to gain proficiency with their aircraft and home carriers, the rigidly trained Japanese carrier fighter pilots gained confidence. There was reason for this optimism. American and British carriers were still flying biplanes, while their launch and recovery timing was slow, according to reports from Lieutenant Commander Minoru Genda, the Navy's Assistant Naval

Air Attaché in London. Genda was himself a former 96 *Kansen* fighter pilot with combat experience in China. He had a philosophy of tactical fighter application similar to Chennault's in China, that of massed fighter use over combat areas to gain total air control, thereby permitting bombing or other air, sea or ground actions with impunity.

Genda's two years in London, and his return to Japan in 1941 during the carrier conversions when A6M2 fighters replaced the open-cockpit and fixed-gear A5M4, had a profound effect on the first combat use of the carrier-based A6M2 and the coming of the Pacific War. When the daring plan to attack Pearl Harbour, conceived in January 1941 by Admiral Isoroku Yamamoto, C-in-C of the Imperial Navy, was first laid out before Rear Admiral Takijiro Onishi, Chief of Staff of the 11th Air Fleet, Onishi asked Genda's opinion. Genda studied the concept in detail, and provided Onishi with a lengthy report on the feasibility of the attack, stressing the use of all six fleet carriers, competent commanders and experienced pilots. By the summer of 1941 the attack plans moved from the feasible to the actual, and *Zero-Sen* carrier training was increased.

Following the commissioning of the carriers *Shokaku* and *Zuikaku* in August 1941, the first elements of *Zero-Sens* were already flying from their decks in September. Combat-trained pilots from the 12th Combined Air Corps flying Model 21's in China were brought back to Japan and re-assigned to the carriers on account of their invaluable experience. Lieutenant Ayao Shirane was assigned to the *Zuikaku*. Lieutenant Fusata Iida, an "ace" with 7 kills, went to the *Soryu*. Lieutenant Commander Shigeru Itaya, also an "ace", became the fighter commander of the *Akagi*. Now a Commander, Minoru Genda became the Operations Officer to Vice-Admiral Chuichi Naguma and was assigned to the 1st Air Fleet on the *Akagi*, the flagship of the Pearl Harbour attack force. It was during the first week in November 1941, in the weapons room of the carrier, that Genda first unveiled a scale model of Pearl Harbour and began to go over the specific details of the forthcoming attack with the commanders of the various aircraft elements assigned to the six carriers.

While the carrier forces were being trained for their water-based mission, a number of land-based Air Corps of the JNAF also began to receive the A6M2 in numbers. With the prime military objectives of war in the Pacific the oil and raw materials of the Dutch Indies, reached by way of the Philippines and Malaya, arrangements were made for attacks to coincide with the raid on Hawaii. In a plan so ambitious it almost defies belief, re-equipping and training for simultaneous attacks on all fronts got underway in the fall of 1941.

1st Class Petty Officer Teimei Akamatsu, third ranking Japanese fighter pilot "ace" in China, got his first chance to fly the *Zero-Sen* in October 1941. Akamatsu had been assigned to the 3rd Air Corps at Kanoya, where the unit was in training for the assault on the Philippines. The plan was to stretch the range of the A6M2 so that the Philippines attack could be made in a single flight from Formosa, thus avoiding the need for carriers which could then be released for the Pearl Harbor attack. Petty Officer Saburo Sakai, who was destined to survive the war as the JNAF's third ranking "ace", received the same training in the *Tainan* Air Corps located at Tainan, on Formosa. Other units, including the *Genzan* and *Kanoya* Air Corps, destined to open the war from Indo-China; the *Ominato*, *Omura* and *Yokosuka* Air Corps combining combat readiness and training; and the *Kasumigaura* and *Oita* Air Corps as training bases, received

Out with the old! In with the new! Mitsubishi 96 Kansen A5M4 Type 96 Carrier Fighters fly overhead as the new A6M2 is readied for service. November 1941 (Koku Asahi)





Fighters on the deck of the Akagi as the Nagumo Force crossed the Western Pacific on its way to Pearl Harbor (Hiko Nippon)

variously claimed that the "Zero" was copied from the Vultee Vanguard, the Chance-Vought V.143, the Northrop FT-1, and the Gloster F. 5/34 experimental fighter. The suggestion that the manoeuvrable Japanese fighter was made of plywood and plastics, a far-reaching technological achievement beyond the design capability of Western nations, even gained acceptance for a short period. With myths replacing facts, the search was on for an intact *Zero-Sen* for evaluation and information. The scant wreckage at Hawaii, and the lack of available examples for months to come, made the aircraft the most sought-after mechanical prize of the early months of the Pacific War.

Master of the Skies

Later in the day after the attack at Hawaii, and long hours after the initial planned assault due to poor weather, *Zero-Sens* appeared over the Philippines. In spite of the warning provided American forces by radio from Hawaii, virtually the entire strength of the American and Philippine air forces were lined up on their airfields. When the 84 *Zero-Sens* of the 3rd and *Tainan* Air Corps, flying from their Southern Formosan bases at Tainan, Takao, Taichu and Palau, first arrived over their targets at Clark and Nichols Field and Iba Field on the west coast of Luzon, they suddenly felt the long over-water trip was worth the effort. They had surprised the defending air forces during lunchtime, and in one day American air power in the Philippines was cut back beyond the point of usefulness. By the end of December *Zero-Sens* were operating out of bases at Davao and Jolo in the Philippines, to remain until the islands were completely conquered.

The next few weeks saw a surge of activity in which victory followed victory so repeatedly that the Japanese began to feel that it was their destiny to rule the East-Asian and Western-Pacific world. The acclaimed hero of the victory was the *Zero-Sen*, reported in the press, on hand at every action, and reportedly invincible in the air. The 1st Carrier Division, coming back from Hawaii, struck at Wake Island. A determined defense led to assignment of the *Soryu* and *Hiryu* to a repeat attack by *Zero-Sen* fighters on December 20. Splitting up at Wake, the *Akagi*, *Kaga*, *Zuikaku* and *Shokaku* were by January 20, 1942, attacking sleepy Rabaul, an Australian base in New Britain. By the next day this fleet was making aerial strikes with A6M2 fighters at Lae, Salamaua and Madang on the east coast of New Guinea. On January 31, nine *Zero-Sens* flying from Truk, the Japanese strong point in the Western Pacific, landed at Vanakanau Airfield on Rabaul and the build-up of this keystone Japanese base began.

While the carrier forces extended the arm of expansion in long strokes, the land-based Air Corps of the JNAF moved across the land bridge of the Dutch Indies to reach the same goals. After the Philippine operations, the *Zero-Sen* units were joined by the *Genzan* and *Kanoya* Air Corps from Malaya and Indo-China, becoming the East Indies force for the final drive through Java. It was during this move that the

Tainan Air Corps became the unit with the greatest number of "aces" in the JNAF. Chinese veterans like Petty Officers Kuniyoshi Tanaka, Saburo Sakai, and *Tainan* Air Corps Commander Lieutenant Junichi Sasai were joined by newcomers Toshio Ota, Torakichi Takatsuka, Hiroyoshi Nishizawa and others. Tanaka had shot down twelve aircraft in China and added eight more kills as the *Tainan* Air Corps worked its way to its advance base at Lae, New Guinea. Nishizawa went on to become the leading JNAF "ace" of the war.

Other units were rapidly formed and sent into the war zones as additional *Zero-Sen* production became available. When the Pacific War began the Imperial Navy had 660 fighters, of which half were A6M2 Model 21's. By the end of March 1942 some 300 fighters had been lost in combat, patrol and training while an additional 316 were delivered to the Navy. Most of the new fighters were *Zero-Sens*, and units were re-equipped and formed with the fighter. The 1st, 6th and *Chitose* Air Corps were assigned to the Japanese Mandate Islands in the "Inner South Seas," with *Chitose* fighters at newly-won Wake Island and others at Aur, Kwajalein, Marus, Wotje and other islands in the chains. As Rabaul was enlarged, elements of the *Genzan*, *Tainan*, 4th and 6th Air Corps flying the A6M2 formed the station defense and offense units. The *Hyakuri*, *Saeki* and *Yutabe* Air Corps received *Zero-Sens* in Japan, while the 202nd moved through the Indies to the Celebes and finally Timor in the "North of Australia" combat theatre. In June 1942 the Model 21 equipped 753rd Air Corps was added to the area to fly convoy escort and provide air cover over Western New Guinea and Northern Australia.

The most active elements of the JNAF remained the carrier forces, with the fighters of the 1st Air Fleet striking across thousands of miles of water. "Navy Naughts", as the Australians sometimes called the *Zero-Sen*, attacked Port Darwin, Australia, on February 19. Later in the month the carrier fleet supported the invasion of Java. Then, in an attempt to re-create the success of Pearl Harbour, elements of the fleet headed for Ceylon, striking at Colombo on April 5 and Trincomalee on April 9. While the attacks were a success from the Japanese point of view, the element of surprise was missing. For the first time the carrier-based *Zero-Sens* had an almost matched fight on their hands when intercepting British Hurricanes and Fulmars held the success of the attackers to a minimum. By the time the carriers got back to Japanese Home Waters in the third week of April, the pilots were the heroes of the Empire. They looked the part, for they were rugged, matured in combat, and deeply tanned from their many months in Southern waters. During the entire cruise the carrier forces never came under strong attack, and no ship was lost.

But the tide of war was imperceptively beginning to turn. The Allied forces, utterly defeated in the opening months of war, were firming up. When the Fleet carriers *Shokaku* and *Zuikaku*, plus the light carrier *Shoho*, of the 5th Carrier

Division went to sea again the object was the invasion of Port Moresby, an Allied base on the South-eastern coast of New Guinea. Air bases there would give Japan control over New Guinea, Northern Australia and the Solomons. For the first time opposing carrier forces met in the Battle of the Coral Sea. On the morning of May 7 American carrier planes from the *Yorktown* and *Lexington* hit and sank the *Shoho*, with the carrier's twelve *Zero-Sens* going to the bottom of the sea or landing on the other carriers. The next day, the *Shokaku* was badly damaged and put out of action. The American carrier *Lexington* was also sunk, giving the Japanese a claim of victory. While the battle actually appeared to be a draw, the Port Moresby invasion attempt was stopped and the Japanese retreated for the first time in the Pacific War. The battle was a costly one, for the JNAF suffered heavy losses in pilots and aircraft. Expecting an easy victory and fighting enemy carrier pilots in close quarters for the first time, the Japanese pilots were careless. During the evening of May 7 more than one A6M2 pilot attempted to land on the American carrier *Yorktown*, mistaking it for the *Shokaku* or *Zuikaku* in the haze when the two carrier fleets were only about 30 miles apart. The fast-thinking American signalmen tried to flag them down, but recognizing their error the Japanese pilots roared away to safety at mast height. The elusive intact *Zero-Sen* for American study once again got away.

By far the greatest Japanese loss was the damaged *Shokaku*, destined to long months under repair, for now this Fleet Carrier could not be assigned to the "Midway Operation", the long-planned decisive fleet engagement of the Pacific War, scheduled for less than a month later. Admiral Yamamoto, himself a pilot, planned to invade Midway in June 1942, and bring the American fleet out to battle. The Imperial Navy, confident of victory in whatever it undertook, couldn't wait for the *Shokaku*. The invasion plans proceeded, and the fleet left Japan as the largest attacking force to ever sail the high seas.

The "Midway Operation" consisted of two thrusts, with a feint in the far north at the Aleutians and the American base at Dutch Harbour. This attack was led by the Fleet Carrier *Ryūjō*, newly equipped with A6M2 Model 21 fighters to replace the 96 *Kansen* fighters in use until May, and supported by the Light Carrier *Junyō*, newly converted from a tourist liner and equipped with 21 *Zero-Sens*. Striking by surprise from 400 miles away on June 3, and again on June 4 (American time), the Japanese suffered under the extreme weather and were only able to place a total of twenty A6M2 fighters and 36 bombers over the target. Lieutenant Yoshio Shiga, commander of the fighters, regretfully reported the loss of a *Zero-Sen* in the First Wave attack on June 3 flown by Petty Officer Tadayoshi Koga from the *Ryūjō*. Koga's A6M2 had been hit by a stray bullet, leading to loss of fuel. Dropping behind, he followed a pre-arranged plan to land on the small island of Akutan to be picked up later by submarine. On the second day two of *Junyō's* fighters were lost in combat, as well as two bombers, while the Japanese pilots reported the downing of five or six American fighters. Japanese rescue subs, scouring the area, found no trace of the missing pilots and gave up the search. The carrier fleet retired without loss.

Meanwhile, far to the south, the Midway assault began. At dawn on June 4, Lieutenant Masaharu Suganami of the *Soryu*, a *Zero-Sen* flying veteran of Pearl Harbour, led the first fighter group of nine fighters each from the *Soryu*, *Akagi*, *Hiryū* and *Kaga* against Midway to support the D3A2 and B5N2 bombers. The Japanese fighters contained the American defenders and not one of the Japanese bombers was attacked. The light carriers *Hosho* and *Zuihō*, far to the rear, were used to provide anti-sub and CAP cover for the Japanese surface fleet. As the day progressed the Japanese were unable to locate the American carrier fleet, although they were under carrier aircraft attack. In a welter of confusion they armed, re-armed and again re-armed their aircraft for alternating attacks against the American fleet, Midway and the fleet again. At the height of the third re-arming the Japanese carriers were caught by American dive bombers, and the course of the Pacific War was changed in five minutes. The defending CAP *Zero-Sens* had just thwarted a repeated series of low-level torpedo and shallow dive-bombing attempts by the Americans, encouraged by the shouted cheers



En-route to Hawaii the aircrews were informed that their target was the American base at Pearl Harbor (Asahigraph)

of their fellow pilots and maintenance crews watching from the carrier decks, when Douglas Dauntless bombers dropped in strings from an altitude beyond interception, and had their way with the Japanese carriers below them. The *Soryu*, *Kaga* and *Akagi* were mortally wounded, and later in the afternoon the *Hiryū* was hit again. By the morning of June 5 all four Fleet Carriers had sunk or were scuttled to avoid capture. The sole American Carrier loss was the *Yorktown*, and for the first time the carrier forces in the Pacific were weighted in favour of the Americans. A desperate plan to use the aircraft of the *Hosho* for further attacks was considered, but was dropped in favour of a Japanese retreat on June 5.

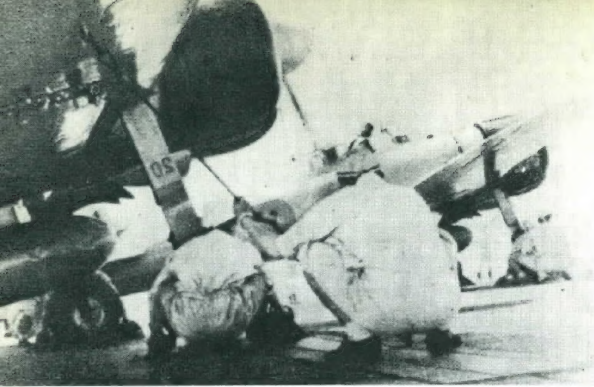
Beginning of the End

The loss in equipment at Midway was staggering. From April 1942 through March 1943, which included the Midway losses, the JNAF expended 1,590 fighter planes while only 1,747 were delivered to the Imperial Navy. This barely met the losses at a time when the Allied strength was increasing. Not only were the carrier complements lost, but additional units as well. A "Midway Air Corps" had even been formed for the occupation of the island, with all of the aircraft stored below deck on the Fleet Carriers sunk in the battle. Fortunately, many of the Midway pilots were saved as their aircraft were in the air. Most of them were rescued by destroyers which picked them up from the water. The greatest loss was on the *Hiryū* with 60 pilots killed in the battle. The survivors were taken back to Japan and re-assigned to the *Shokaku*, *Zuikaku* and *Ryūjō* to replace losses. Others went to land bases in the Solomons where they flew their now-aging *Zero-Sen* and its later Model 32 and Model 22 variants. Most of them were lost there.

The last major carrier use of the A6M2 was in the battle of Santa Cruz on October 26, 1942. By now the Americans had landed at Guadalcanal and the Japanese threw the carriers *Shokaku*, *Zuikaku*, *Zuihō* and *Junyō* into a battle to sever the American supply lifeline to Guadalcanal in the Eastern Solomons. Under constant attack by bombers and fighters flying extended-range missions from Rabaul, and then under Japanese carrier aircraft attack, the American position on Henderson Field on Guadalcanal held out against greatly

The early morning hours of Sunday, December 7 1941, while America slept. Pilots of the 1st Carrier Division man their planes on the high seas (Shashin Shuho)





On the alert. Ground crewmen ready to release on signal (Koku Asahi).

superior forces. But a new sense of American victory was being felt, for now the Japanese loss rate of A6M2 Model 21 fighters was far exceeding the American losses. With the carriers *Shokaku* and *Zuikō* damaged beyond further use in the battle in carrier-vs.-carrier aircraft duels, the Japanese retreated. Never again would the "Zero Fighter", by now now tagged with the Allied Code Name "Zeke" (although the name "Zero" retained its popularity for the remainder of the war), be regarded as invincible, for now the allied pilots were armed with information. A few weeks after the carrier-aircraft attacks on Dutch Harbour in the Aleutians the previous June, an American patrol plane spotted an unfamiliar shape in a bog on Akutan Island. A ground party went in, discovered that the young Japanese naval Petty Officer who flew it had broken his neck and died when his "Zero Fighter" flipped over on hitting the soft surface, and brought the aircraft out. It proved to be a newly-produced *Zero-Sen* built at Nagoya in February. In July the aircraft was under repair at the United States Naval Air Station at San Diego, California and by September it was flying in USN colours. Petty Officer Tadayoshi Koga's Model 21 from the *Ryūjō* gave the American Navy the prize it sought so long. The first performance report was issued to American pilots on September 4, and by October 31 a full report on the "Zeke's" performance in combat was widely distributed. The many "Zero Fighter" myths were put to rest, and American pilots learned how to use their slower, less manoeuvrable aircraft to best advantage, for in high-speed rolls and pushovers the stronger American aircraft had it all over the lighter "Zeke."

After Santa Cruz the A6M2 Model 21 did not disappear from service, although it now became a supplemental aircraft rather than the prime combat model. An attempt was made to improve the performance of the A6M2 with a turbo-supercharger as the A6M4, but the idea was dropped after two prototypes were tested. Newer Model 32, Model 22 and later the Model 52 variants took over the *Zero-Sen* production lines. Most of the later-formed Model 21 units, such as the *Konoike*, *Tokushima*, *Tsuiki* and *Tsukuba* Air Corps in Japan, used the Model 21 on training duties. Units stretched along the Chinese coast to Syonan, the Japanese name for Singapore, using the Model 21 for anti-submarine patrol duties as part of the 1st Escort Group, as well as training. Some of these units, including the 309th and 381st Air Corps at Syonan, and the 901st in China, still had Model 21's on hand at the end of the war, although many had been shipped to Japan for Special Attack purposes.

Some of the Model 21's even saw first-line combat years after passing their prime. The 601st Air Corps received Model 21's in February 1944, and assigned them to the carriers *Hokaku*, *Shokaku* and *Zuikaku* in April 1944 to be used in the defense of the Marianas. The 652nd and 653rd Air Corps in the Marianas had the A6M2 in first-line service in June 1944 as fighter-bombers, with the 652nd losing six and the 653rd losing 42 out of its original 46 in the "Marianas Turkey Shoot" between June 18 and 20. When the 341st Air Corps went to its base at Clark Field in the Philippines in the summer of 1944 it took Model 21's along for training, with examples later captured there by American invasion forces. When the 11th Air Corps was finally disbanded at Syonan in December 1944, its pilots joined the 381st Air Corps stationed there, while its A6M2 equipment was sent

back to Japan for *Kamikaze* operations, the final combat use of the best known Japanese aircraft of all times.

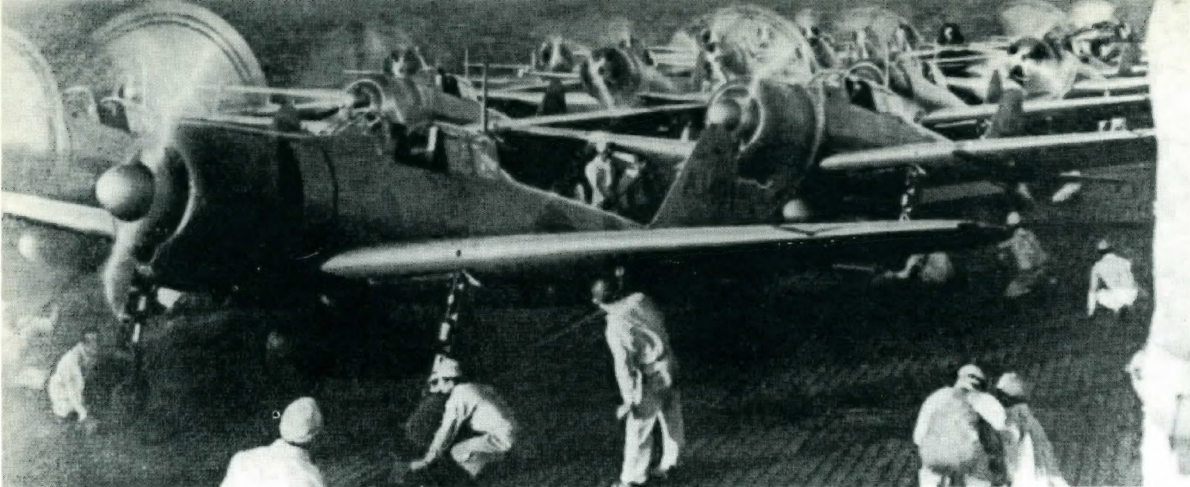
Fighter on Floats

The possibility of war in the Pacific, based on the pressures being exerted by the Western Democracies and Japan's need for Dutch Indies oil and tin, was seriously faced by the Imperial Navy at the time the *Zero-Sen* made its first appearance in the A6M2 Model 11 form in 1940. The need to hold positional bases in Southern waters after the carriers had struck, and before land-based fighters could be moved in due to base construction requirements, led to the assignment of a 15-*Shi* specification for a floatplane fighter. Kawanishi got the developmental order while Nakajima got an interim order late in 1940 to quickly produce a stop-gap float fighter to have on hand in little over a year. To save engineering time the A6M2 Model 11 minus its landing gear was to be the design basis, and in February 1941 work began on Nakajima Project AS-1 as the A6M2-N. Nakajima engineers Tajima and Niitake used every short-cut at their command, and by December 1941 the first of four prototypes was on hand at the Yokosuka Naval Air Test centre. Wind tunnel and water tank tests led to the use of the existing E8N1 mainfloat design, mounted on a single pylon, with fuel tankage in the float, and modified vertical tail surfaces to provide the necessary additional directional stability. On December 8 (Japanese time), only a matter of hours after the attack at Pearl Harbor, the prototype A6M2-N made its first flight. By April the fighter was in production, with experimental Model 11 prototypes scheduled for combat evaluation within weeks in the Pacific. In July the A6M2-N was officially accepted for JNAF production as the Type 2 Floatplane Fighter, Model 11. It became generally known as the 2 *Suisen*.

Its test of strength was soon in coming. In much the same manner as the 12-*Shi* A6M2 was whisked to China, the pre-production A6M2-N was sent to the Solomons. On May 3, 1942, as a prelude to what was to be the unsuccessful Port Moresby invasion, Florida Island and the harbour of Tulagi were invaded. This strategic inlet further extended Rabaul's defense perimeter and gave the JNAF a base in the Solomons that provided air cover over North-eastern New Guinea as well as the Bismark Islands behind it and the far reaches of the Solomons before it. The *Yokohama* Air Corps, equipped with twelve of the service-test A6M2-N float fighters, was immediately moved in. By the time American carrier aircraft were counterattacking on May 4, they were being intercepted by the 2 *Suisen*. Surprised by the American presence, the *Yokohama* Air Corps lost 3 or 4 of its new fighters, which were quickly replaced from Japan.

As a fighter the 2 *Suisen* was formidable, but as a floatplane it was a shock. Armed with two 20mm cannon and two 7.7 machine guns, the A6M2-N had a speed of 270 m.p.h. It literally out-performed its American carrier-based opposition, and intercepted land-based B-17E Flying Fortress bombers as high as 20,000 feet. Because it was there and had a home base in the area, the 2 *Suisen* owned the skies over the Solomons. Code named "Rufe" by the Allies, the fighter soon showed up throughout the Southern Islands; in the Shortlands, Rekata Bay, Poporang in the Southern Bougainville and around the approaches to Rabaul. As production got moving in July 1942, with an improved model coming off the Nakajima lines beginning in December and continuing through the end of production in September 1943, the "Rufe" began to show up wherever the JNAF had water close at hand, in areas where improved airfields were not available.

The most dramatic use of the "Rufe" was in the Aleutians. After Midway, Admiral Yamamoto felt it unwise to attempt to invade the Aleutians, but Naval Headquarters and his fellow officers overruled his objections. Their goal was to occupy American land and prevent any assaults or invasion attempts against northern Japan across the island-hopping land bridge stretching from Alaska to the Kuriles. Sadly underrating their enemy, the Japanese assumed that the bitter weather would restrict American counter-measures and that the 2 *Suisen*, in the absence of airfields, would command the skies and be able to defend the Japanese bases at Kiska and Attu. The float fighters, accompanied by E13A2, E8N1 and F1M2 floatplanes, were ferried in during June and July 1942



Reisens warming up on the deck of the Akagi the morning of December 8th, 1941, Japanese time, prior to the Pearl Harbor attack (M. Toda).

by the seaplane tenders *Chitose*, *Chiyoda* and *Kamikawa-Maru*. At Kiska, the *Kamikawa-Maru* unloaded its first eight "Rufes" for the 5th Air Corps on June 15. Commanded by Captain Takahashi, by July 14 the 5th Air Corps had a dozen of the float fighters set up and in operation, plus all the support equipment and supplies to maintain the unit for an extended period. They operated out of Kiska Harbor.

They arrived none too soon. Within a week after their arrival the Japanese at Kiska were under American air attack, which only intensified as the months passed and the Americans built airstrips closer and closer to the Japanese occupied islands. Briefly capturing Attu Island, leaving it, and returning again to prevent its use as an air base, the JNAF moved the *Toko* Air Corps into Attu in October and provided it with "Rufe" fighters. B-17E Flying Fortress, B-24 Liberator, Catalina and finally Lockheed P-38 Lightning fighter attacks against the lonely Japanese garrisons, with the P-38 seeing its first combat use in the Pacific, kept the Japanese units under constant pressure. In the early days of the Aleutians fighting the "Rufe" pilots held their own. Although there were no 2 *Suisen* "aces", a creditable number of American bombers were downed by the fast floatplanes. On at least one occasion a "Rufe" downed a P-38, in spite of the fact that the American fighter definitely held the advantage. Over Kiska, the 5th Air Corps maintained CAP cover with two "Rufes" throughout the day, with two more going up as soon as the patrol on duty started down. By September 1942 the top ranking "Rufe" pilot at Kiska had shot down two B-17's. On September 14 the tide definitely turned. Mounting a heavy raid of twelve B-24's supported by

twenty-eight P-38 and P-39 fighters, the American Army Air Forces destroyed four "Rufes" without combat loss, although two of the P-38's collided and crashed.

Attacks almost daily, and continued strafing of the Japanese fighters, broke the back of the resistance. By March 1943 the frequently reinforced 5th, later the 452nd, and *Toko* Air Corps were inoperable. At one point seven "Rufes" were sunk or beached at Kiska, beyond repair, while the strafed wreckage of other "Rufes" littered Holtz Bay at Attu. When American forces landed at Attu in May 1943 there was no fighter opposition. By August the Americans landed at Kiska, only to discover that the entire Japanese force had moved out under cover of fog the month before and escaped unscathed. A wrecked "Rufe" was pulled out of the sea at Attu in June, shipped to the Alameda Naval Air Station in California for study, and then soon forgotten. Pilots in the superior Allied aircraft no longer worried about the makeshift fighter.

In the South Pacific, the 2 *Suisen* suffered equally hard, with the men of the *Yokohama* Air Corps, first unit equipped with the fighter, becoming national martyrs. Continually on the offensive, and almost as consistently winning, the Imperial Navy was totally unprepared for any Allied counterattack. On August 7, 1942 it came, and the target was the outer reaches of the Solomons. Just before dawn the garrison at Tulagi reported that Florida and Guadalcanal islands were under heavy bombardment. When communications stopped, 8th Fleet Headquarters at Rabaul could only assume that Tulagi and the *Yokohama* Air Corps had been completely overrun. American landings had been made, all eight of the

Waiting for the moment of release of Reisens on the deck of the Akagi (R. M. Bueschel).



Yokohama's "Rufes" were destroyed, and the brutal battle for control of Guadalcanal and the Solomons had begun.

With the outer fringes of Japan's wartime empire cauterized, the "Rufe" was no longer the advance representative of the JNAF in the air. Its rôle became defensive and largely passive. In the combat zones, with the transport carrier *Kaiyo* supplying the 958th Air Corps at Rabaul, the A6M2-N still found use as an interceptor until the pull-out early in 1944. At Paramushiro in the Kuriles the remnants of the 452nd Air Corps flew interception missions from their base at Shimushu in 1942 and 1943, flying a dozen "Rufes". Farther back behind the Pacific front, "Rufes" of the 40th Air Corps, later becoming the 936th, provided convoy escort, anti-submarine and reconnaissance patrol from its bases at Syonan and Brunei in North Borneo until the end of the war. The 801st formerly the *Yokohama* Air Corps, and the *Otsu* Air Corps in Japan were also used for patrol, while the "Rufes" of the *Otsu* Air Corps even doubled as B-29 interceptors late in 1944 from their base on Lake Biwa near Kyoto. Some of the late model A6M2-N fighters, 73 of which were completed in a rush in September 1943 to terminate production, had full night flying gear for patrol duties. Others became trainers for the powerful Kawanishi N1K1 *Kyofu* floatplane fighter "Rex", entering service early in 1945. A few even survived the war, with at least one of the 936th Air Corps "Rufes" ultimately serving under French colours in Indo-China until the early 1950's.

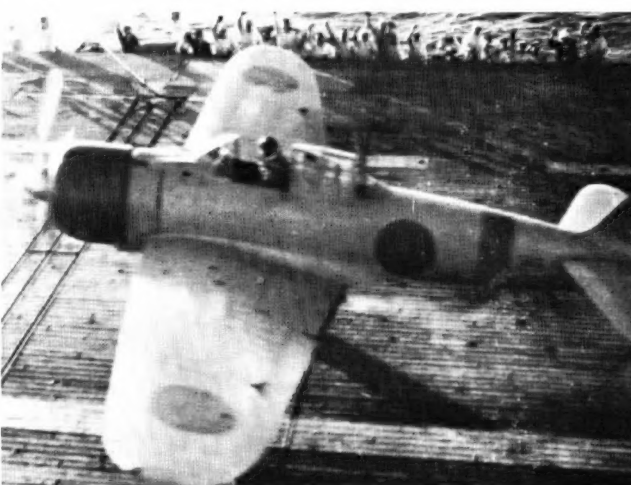
Trainer for Two

The expanded training requirements of the Pacific War led to the only non-combatant model of the A6M2 *Zero-Sen* series. Two airframes modified to carry an instructor to the rear and student in front were produced at the 21st Naval Air Arsenal at Omura early in 1942 in much the same manner as the A5M4-K had been developed from the A5M4 fighter. Assigned a 1942 17-*Shi* project number, the high-speed trainer was accepted for production as the A6M2-K later in the year, strangely retaining the Type 0 production designation as the Type 0 Trainer-Fighter Model 11. Officially named the *Reivensen*, it became known as the *Zero-Ren*. The cannon and wheel covers of the combat model were removed to save weight, although the machine guns were retained for training. The 21st Arsenal put the new trainer into production late in 1942 and ultimately produced 236 more between February 1943 and October 1944. An improved model entered production at Hitachi early in 1944 with 272 produced there between May 1944 and the end of July, 1945. The Imperial Navy placed orders with Hitachi for 665 of the trainers in this period, but bombings and the inability to set up the lines fast enough caused the firm to lose over half of this potential business.

Physically, the A6M2-K looked much like its *Zero-Sen* parent, although a long canopy to protect the instructor (while leaving the student out in the open air) and horizontal fins on the fuselage to control an annoying tail flutter altered its appearance somewhat. The availability of the new conversion trainer enabled the JNAF to undertake an experiment in training that would hopefully speed up the process. A6M2-K trainers were assigned to combat units and students were then assigned directly to these units after completion of primary and intermediate training. The goal was to conduct all conversion training in the line units, thereby shaving three to six months from a 1½-year training schedule. With pilots of natural ability the idea worked, but in the main the procedure took longer, wasted valuable fuel, and led to many unfortunate accidents. By late 1944 an acute shortage of fuel curtailed this advanced training and the on-the-job training programme in combat units was re-evaluated. Fuel was allocated to the training establishments, and soon the pilots had been cut to 15 flying hours per month. Most units retained *Zero-Ren* trainers as pilot refreshers, while others used them for Special Attack training for the mass suicide missions anticipated in the event of an invasion of Japan. The A6M2-K held the distinction of being the last development of the famous A6M2 series to remain in production, with the last example completed less than three weeks before the end of the war. Few World War II aircraft maintained such a record.

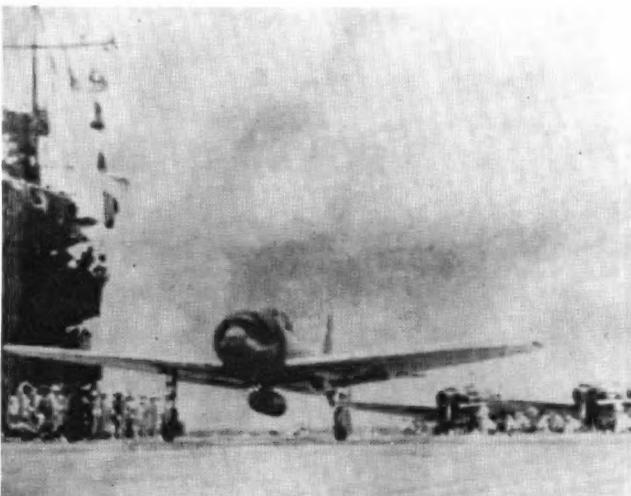


Above: The signal is given. Release on the carrier *Shokaku* (Shashin Shuho)



Above: An Akagi fighter, one of nine, takes off in the First Wave against Hawaii (via R. Ward)

Below: Taking off from the deck of the *Shokaku* on the way to the opening battle of the Pacific War (M. Toda)



SPECIFICATIONS : Mitsubishi A6M Type O Ship-based (Carrier) Fighter *Reisen* (Zero-Fighter) and Modifications.

NOTE: All dimensions in original Japanese metric. Dimensions and climb in meters (m), weights in kilograms (kg), distances in kilometers (km) and speeds in kilometers - per-hour (km/hr.) Data in parenthesis are estimates or approximate.

Model and Specs	A6M1 12-Shi Prototypes	A6M2 Model 11	A6M2 12-Shi Prototypes	A6M2 Model 11	A6M2 Model 21	A6M2a Model 21A	A6M4 Model 41	A6M2-N 15-Shi	A6M2 Model 11	A6M2-N Model 21	A6M2-K 17-Shi	A6M2-K Model 11	A6M2-K Model 21
Crew	1	1	1	1	1	1	1	1	1	1	2	2	2
Span (M)	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Length (M)	9,06	9,06	9,06	9,06	9,06	9,06	9,06	9,06	9,06	9,06	9,150	9,150	9,150
Height (M)	3,43	3,509	3,509	3,509	3,509	3,509	3,509	3,509	3,509	3,509	3,509	3,509	3,509
Wing Area (M ²)	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44	22,44
Weight Empty (kg)	1,652	1,671	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,819	1,819	1,819
Weight Loaded (kg)	2,343	2,389	2,410	2,410	2,410	2,410	2,410	2,410	2,460	2,460	2,334	2,334	2,334
Max. Speed (km/hr)	513/360m	533/4550m	533/4550m	533/4550m	533/4550m	533/4550m	533/4550m	533/4550m	533/4550m	533/4550m	476	476	476
Climb (m/min.)	5000/7' 15"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 27"	6000/7' 56"	6000/7' 56"	6000/7' 56"
Armament—M.G. (mm)	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7	2x7.7
Armament—Cannon (mm)	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	—	—	—
Armament—Bombs (kg)	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	2x30, or 2x60	—	—	—
Power Unit—Mfr.	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Nakajima	Nakajima	Nakajima
Type	MK2 Zui-sei 13	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12	NK1c Sakae 12
H.P.	780	940	940	940	940	940	940	940	940	940	940	940	940
Aircraft—Mfr.	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Mitsubishi	Field Modif.	Mitsubishi	Nakajima	Nakajima	Nakajima	Sasebo	Sasebo	Hitachi
First Built	March 19, 1939	Dec. 1939	July 31, 1940	Nov. 1940	April 17, 1941	(1943)	1942	Dec. 1941	July 1942	Dec. 1942	Jan. 1943	Feb. 1943	May 1944
Number Built	2	17	47*	127	(1425)**	(35)†	21†	4	107	220	2	236	272

*Reinforced wing spar beginning with aircraft No. 22. **Differed from earlier Model 21 by having aileron tabs. †Long barrel 20-mm cannon. ‡Model 21 with turbosupercharger.

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Front Cover, top to bottom:

Mitsubishi A6M1 12-Shi Experimental Carrier Fighter, second prototype. Yokosuka, November 1939.
Mitsubishi A6M2 Type O Carrier Fighter, Model 11. 12th Combined Air Corps, Hankow, China, September 1940.
Mitsubishi A6M2 Type O Carrier Fighter, Model 21. 6th Air Corps, New Guinea, April-October 1942.
Mitsubishi A6M2 Type O Carrier Fighter, Model 21. Oita Air Corps, Operational Training Unit, March 1944.

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